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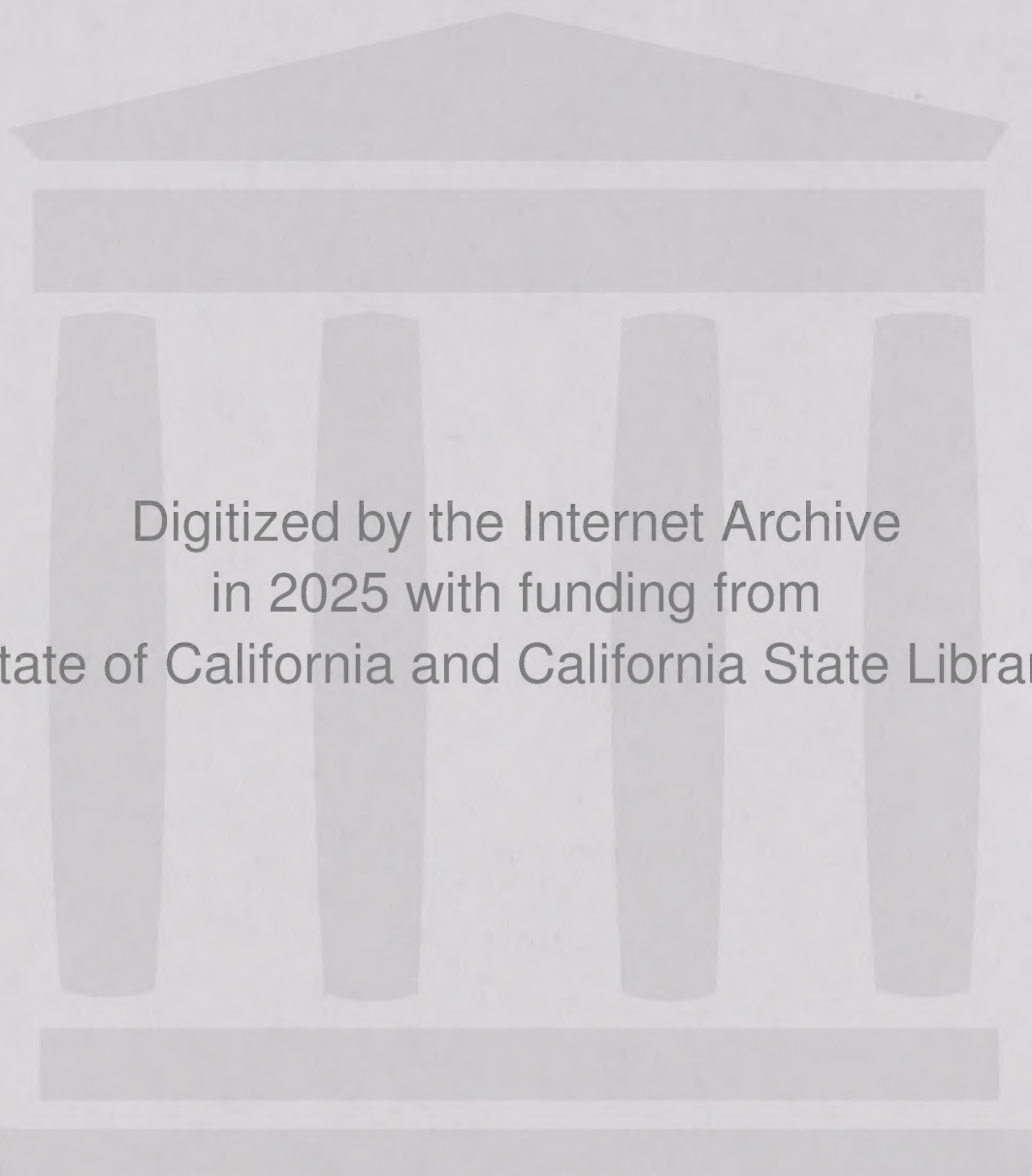
CITY OF RIVERBANK

General Plan

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Introduction

Adopted __, 19__

Introduction to the General Plan

AUTHORITY

The Government Code of the State of California specifies that the city shall adopt a comprehensive, long-term general plan (Section 65300) to provide for the physical development of the city and of land outside the city's boundary which bears relation to its planning. For the City of Riverbank, the general plan covers some 4470 acres, approximately 1140 of which are within the city limits.

The general plan must consist of seven elements (land use, circulation, housing, conservation, open space, safety, and noise) and may include as many optional elements as the city may desire. The only optional element the City of Riverbank has chosen to adopt is a recreation element although additional elements may be proposed in the future such as a public facilities element.

HISTORY OF THE GENERAL PLAN

The first general plan was adopted by the City of Riverbank on May 12, 1959 and consisted solely of a land use and circulation element. A countywide housing element which included the city was adopted by the city council in January, 1970. In September, 1971 a water, sewer and storm drainage element was adopted. In 1973, with the aid of the Stanislaus Area Association of Governments, the general plan was amended so that the plan then consisted of all of the required elements except the safety element. This final element was adopted on September 23, 1974.

A major overhaul of the general plan documents occurred in the early 1980's with revised elements being adopted. More recently the land use element was revised in January 1987 and the circulation element in December 1987. Work is expected to continue to maintain and update all of the elements in a regular cycle.

HISTORY OF THE CITY

The City of Riverbank was incorporated in 1922 and consisted of some 340 acres. The city remained that size until 1952 when the first annexation occurred. From 1952 to 1967 approximately 189 acres were annexed. More than 140 acres were annexed from 1967 to 1971. an additional 195 acres were annexed by 1979 and almost 210 more acres by August, 1982. Less than 70 acres has been annexed between August, 1982 and the end of 1987. It is expected that annexations will once again begin to increase with over 100 acres already approved for annexation in 1988.

POPULATION GROWTH

Since the city was incorporated in 1922, it has increased its population more than 750 percent from 803 in 1930 (the first census after incorporation) to 6929 in 1986. Just during the past 26 years (1960 to 1986) the City of Riverbank has increased

about 250 percent at a rate of 40-44 percent during each of the last two decades. At this rate of growth, the population of the city will be in excess of 11,000 by the year 2,000 (see Table 1).

TABLE 1
Population Growth

<u>Year</u>	<u>Population</u>	<u>Growth Rate</u>
1930	803	-
1940	1,130	36.1%
1950	2,662	135.6%
1960	2,786	4.7%
1970	3,949	41.7%
1980	5,695	44.2%
1986	6,929	21.7%
1990*	7,973	40%
2000*	11,162	40%
2010*	15,627	40%

* Projected

These figures differ from the latest information published by SAAG (April 1985). There are any number of variables that may affect these figures. Most of the variable will result in much higher population projections than those listed. First, there are a large number of bay area commuters moving to the valley area. As yet, large numbers of these people are not moving to Riverbank but with the restrictions on growth (largely lack of sewer capacity) in many of the communities currently providing housing, these people will have to look for housing elsewhere. Second, the failure of Measure Q on the Modesto ballot which would have provided approval of two sewer trunk extensions has developers looking elsewhere for land to develop. Many of these developers have approached the city during 1987 with plans for large subdivisions. This type of development has not been anticipated in the above figures.

The 4470 acre general plan boundary is capable, at currently approved densities, of housing 48,000 people.

INTRO.00A

INTRODUCTION

The purpose of this document is to provide a general overview of the project and its objectives. The project is a research study on the effects of a new drug on the treatment of a specific condition. The study is being conducted by a team of researchers from a leading university. The results of the study are expected to be published in a peer-reviewed journal.

The study is a randomized, double-blind, placebo-controlled trial. The participants are divided into two groups: the treatment group and the control group. The treatment group receives the new drug, while the control group receives a placebo. The study is being conducted over a period of 12 weeks. The primary outcome measure is the change in the level of a specific biomarker.

CONFIDENTIAL

The study is being conducted in a clinical setting. The participants are recruited from a local hospital. The study is being conducted in accordance with the ethical principles of the Declaration of Helsinki. The study is being conducted in a clinical setting. The participants are recruited from a local hospital. The study is being conducted in accordance with the ethical principles of the Declaration of Helsinki.

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The 4470 acre general plan boundary is capable, at currently approved densities, of housing 48,000 people.

INTRO.00A

LAND USE ELEMENT
RIVERBANK GENERAL PLAN

November, 1990

Amendment of November 13, 1990

LAND USE ELEMENT

GOAL IV

TO MINIMIZE POTENTIAL CONFLICTS BETWEEN RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL LAND USES.

Conflicts between various types of land uses are the basis for having zoning as a means of protecting property rights. A large industrial plant, for instance, is generally not compatible with residential development. The industrial plant feels constrained in what it wants to do because of public opinion and the residential area complains about the noise, odor, traffic, etc. associated with the plant. The general plan, aided by the zoning, can help this situation.

Policy 4a:

Generally, higher density residential uses should be encouraged near the central business district and other commercial development, to meet the needs of those who wish to live close to commercial services and amenities.

Implementation Measure:

1. Areas near the downtown shall be designated for medium to high density residential uses.

Policy 4b:

Whenever possible, industrial uses shall be located on rail lines and not adjacent to residential areas.

Implementation Measure:

1. In general, land along the Santa Fe railway shall be designated industrial. It is recognized, however, that some of this land is more suited for residential development; particularly that land located south of Pocket Avenue. Since much of the land is already residential and since an industrial "island" would not mix well with the surrounding residential uses, it is more prudent to continue the pattern of residential development that has occurred in this area. It is suggested, however, that a wall be required along the Santa Fe railway to reduce the visual and audio impacts upon the residential neighborhoods.

Policy 4c:

The zoning ordinance shall clearly delineate residential, commercial, and industrial zones and generally shall not allow mixing residential uses with commercial and industrial uses.

Implementation Measure:

1. The zoning ordinance shall be maintained so that resi-

dential uses in commercial zones require a use permit.

Policy 4d:

High density residential shall be located in areas already zoned for high density development. Additional land shall be designated along the west side of Roselle Avenue, north of Morrill Road and on the north side of Minniear, between Claus Road and Townsend Avenue.

CHAPTER III

LAND USE PLAN

5. Industrial. Land designated for industrial purposes is located along the railroad tracks between Roselle and Terminal Avenues, except the area south of Pocket Avenue between Roselle Avenue and the Santa Fe railway. Also included, are the Contadina Cannery (off Callander), Norris Industries (northeast corner of Claribel and Claus), several blocks just southwest of downtown, and the area bounded by Terminal, Claus, Minnier and Claribel Roads. Maximum density allowed in this designation is 20 dwelling units per net acre. Building intensity is governed by the zoning ordinance and the building code. Appropriate zones within the industrial designation include CM (Commercial Industrial), M-1 (Light Industrial), M-2 (Heavy Industrial), and PD (Planned Development) when the latter is for uses permitted in the above zones and does not exceed the maximum permissible density for this designation.

ADOPT.01C

November 13, 1990

Amendment 05-90

LAND USE ELEMENT

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Adopted November 13, 1990

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LAND USE ELEMENT

CHAPTER 1

INFORMATION

A. AUTHORITY

Government Code Section 65302(a) requires a land use element that designates the proposed general distribution and general location and extent of the use of the land for housing, business, industry, open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal, facilities, and other categories of public and private uses of and. The land use element shall include a statement of the standards of population density and building intensity recommended for the various districts and other territory covered by the plan. The land use element shall identify areas covered by the plan which are subject to flooding and shall be reviewed annually with respect to those areas." Further, through text, diagrams and maps it should establish a pattern for land use and set out clear standards for the density of population and the intensity of development for each of the proposed land uses.

B. INFORMATION

Existing Zoning. As of June 1, 1986 the city had 1143 acres within the city limits. Table 1, Zoning Districts in Acres, includes a breakdown of the 1143 acres by zoning district.

As Table 1, Zoning Districts in Acres, indicates, the city has a large supply of vacant land in each of the major land use categories. The amount of vacant residential land has decreased by 4 1/2 percent in the past 3 1/2 years. In addition, development is actually occurring (final subdivision maps and at least preapplication conferences on building permits) on approximately one quarter of this land. This was not the case when the last inventory was taken in October, 1982. It is apparent that additional residential land will be needed in the not too distant future.

Solid and Liquid Waste Facilities. The city's liquid waste facilities (sewer plant) is located north of the city in San Joaquin County. The plant has a current capacity of 7.9 million gallons a day. The current domestic use and year-round commercial and industrial usage is about 750,000 gallons per day. During peak summer months with the cannery operating 24 hours a day, the usage can increase to as much as 3.5 million gallons per day. The facility is not within the sphere of influence since it is in another county and cannot, therefore, be annexed. Solid waste is picked up by a franchised garbage company who disposes of the material in a county-owned land fill. There are no plans to provide either type of facility within the Riverbank Sphere of Influence.

TABLE 1
ZONING DISTRICTS IN ACRES

Zoning District	Land in Acres	Percent of Total	Vacant Acres	Vacant Acres as a Percent of Zone
R-1	635	55.5	116	18.3
R-2	80	7.0	40	50.0
R-3	47	4.1	9	19.1
R-4	3	0.3	0	0
C-1	26	2.3	1	3.8
C-2	81	7.1	31	38.3
CM	22	1.9	2	9.1
M-1	204	17.8	93	45.6
M-2	7	0.6	0	0
PD (Com)	3	0.3	0	0
PD (Res)	35	3.1	30	85.7
Total	1143	100.0	322	28.2

Flooding. The City of Riverbank does not fall within any area that is subject to flooding. According to the Department of Housing and Urban Development no flood maps of the city are available since none of the city is subject to flooding. The only area within the HUD flood zone maps in the city's sphere of influence is the area north of the levee along the Stanislaus River.

CHAPTER 2

GOALS, POLICIES AND IMPLEMENTATION MEASURES

Over the years the city has, through formally adopted goals and policies, dealt with constantly changing situations, establishing land use planning program. The following goals and policies include all such actions.

GOAL I

TO MAINTAIN AN UP-TO-DATE LAND USE ELEMENT OF THE GENERAL PLAN AND TO ENSURE COMPATIBILITY WITH THE ZONING AND SUBDIVISION ORDINANCES.

The land use element is closely related to zoning within the city and governs the future zoning of land outside the city. It is necessary that this element be kept current with changing trends although changes should not be so frequent and sweeping that the element is no longer useful as a future planning tool. The land use element should be a general picture of what the future Riverbank will look like and any changes should be made with this in mind.

Policy 1a:

A comprehensive review of the land use element will be made at least every 5 years to ensure that it remains responsive to changing conditions.

Implementation Measure:

1. A comprehensive review of the land use element will be conducted no later than 1991.

Policy 1b:

Amendments may be considered more often if conditions warrant but shall not be made more often than four times a year for each element.

Implementation Measure:

1. Amendments to the land use element of the general plan shall be considered at the March, July and November planning commission meetings with a fourth meeting to be reserved for city initiated amendments.

Policy 1c:

All development applications shall be reviewed to insure consistency with the Riverbank General Plan.

Implementation Measures:

1. Requested amendments to the zoning ordinance, either to the text or by rezoning property, shall be reviewed for compliance with the general plan.
2. Proposed annexations shall be carefully reviewed for compliance with the goals and policies of this element.

3. Zoning and general plan designations shall be consistent. No rezoning applications will be accepted unless the proposed zone is consistent with the general plan designation.

GOAL II

TO ENCOURAGE ORDERLY URBAN DEVELOPMENT WITHIN THE RIVERBANK SPHERE OF INFLUENCE.

The land use element should be used as the main guideline for future extensions of the city limits. It provides guidance as to how areas will be developed. As vacant land within the city is developed, additional land within the sphere of influence and contiguous to the city limits should be annexed to provide adequate, but not excessive, vacant land for all types of land uses.

Policy 2a:

Only land contiguous to the city limits shall be annexed and then only if it creates a logical city boundary with no county islands.

Implementation Measure:

1. Proposed annexations shall be carefully reviewed for compliance with the goals and policies of this element.

Policy 2b:

The city shall consider whether or not there is a sufficient inventory of land for a variety of potential land uses when it reviews annexation requests.

Implementation Measure:

1. An inventory of vacant land by type shall be maintained by the planning director and used to (a) evaluate proposed annexations and (b) ensure an adequate supply of vacant land by type.
2. The neighborhood at the northeast corner of Claribel and Coffee Roads shall be the last area within the general plan boundary for which addition to the sphere of influence shall be requested of LAFCO. Such a request shall not be submitted until the sphere of influence addition requested in 1989 is substantially developed or committed to development.

Policy 2c:

The city supports Stanislaus County's urban transition concept which provides for input from the city prior to granting any permits within the city's sphere of influence. Specifically, the city shall discourage land use activities in the unincorporated territory within the sphere of influence which could interfere with the implementation of the general plan.

Implementation Measure:

1. When referrals are received from the county on planning

matters within the sphere of influence, the planning commission shall review the proposal and respond.

Policy 2d:

Large, undeveloped commercial areas shall be preserved to provide needed commercial development as required.

Implementation Measure:

1. Large, undeveloped commercial uses shall be zoned PD (Planned Development) in order to develop into commercial uses. The area currently designated for this type of zoning is along Patterson Road from Jackson Avenue to the ultimate city limits and on the north side of Patterson Road between Claus Road and Central Avenue.

Policy 2e:

All land shall be rezoned consistent with the general plan designation prior to annexation.

Implementation Measure:

1. Any requests for annexation shall be accompanied by a rezoning application.

GOAL III

TO MAINTAIN THE EXISTING CENTRAL BUSINESS DISTRICT AND OTHER CENTRALIZED COMMERCIAL AREAS AS THE FOCUS OF RETAIL ACTIVITY.

It is the city's desire that the central business district (CBD) be preserved from deterioration. In addition, the city has determined that the area along Highway 108 on the north side of Patterson Road between Claus Road and Central Avenue are appropriate locations for commercial development.

Policy 3a:

Generally, commercial uses should be encouraged downtown; along highway 108 from Claus Road to the western city limits and on the north side of Patterson Road between Claus Road and Central Avenue.

Policy 3b:

The commercial areas designated in this element are clearly defined and encroachment of non-compatible uses into this area should be prevented.

Implementation Measure:

1. The zoning ordinance shall be maintained so that residential uses in commercial zones require a use permit.

Policy 3c:

Leapfrog commercial areas on the fringe of the sphere of influence should be discouraged.

Policy 3d:

Any proposed redevelopment plan should include measures for

preserving and upgrading the downtown area.

GOAL IV

TO MINIMIZE POTENTIAL CONFLICTS BETWEEN RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL LAND USES.

Conflicts between various types of land uses are the basis for having zoning as a means of protecting property rights. A large industrial plant, for instance, is generally not compatible with residential development. The industrial plant feels constrained in what it wants to do because of public opinion and the residential area complains about the noise, odor, traffic, etc. associated with the plant. The general plan, aided by the zoning, can help this situation.

Policy 4a:

Generally, higher density residential uses should be encouraged near the central business district and other commercial development, to meet the needs of those who wish to live close to commercial services and amenities.

Implementation Measure:

1. Areas near the downtown shall be designated for medium to high density residential uses.

Policy 4b:

Whenever possible, industrial uses shall be located on rail lines and not adjacent to residential areas.

Implementation Measure:

1. In general, land along the Santa Fe railway shall be designated industrial. It is recognized, however, that some of this land is more suited for residential development; particularly that land located south of Pocket Avenue. Since much of the land is already residential and since an industrial "island" would not mix well with the surrounding residential uses, it is more prudent to continue the pattern of residential development that has occurred in this area. It is suggested, however, that a wall be required along the Santa Fe railway to reduce the visual and audio impacts upon the residential neighborhoods.

Policy 4c:

The zoning ordinance shall clearly delineate residential, commercial, and industrial zones and generally shall not allow mixing residential uses with commercial and industrial uses.

Implementation Measure:

1. The zoning ordinance shall be maintained so that residential uses in commercial zones require a use permit.

Policy 4d:

High density residential shall be located in areas already

zoned for high density development. Additional land shall be designated along the west side of Roselle Avenue, north of Morrill Road and on the north side of Minniear, between Claus Road and Townsend Avenue.

GOAL V

TO ENCOURAGE A DIVERSIFIED ECONOMIC BASE TO PROVIDE VARIED JOB OPPORTUNITIES AND PROTECT THE ECONOMIC STABILITY OF THE COMMUNITY.

Riverbank is gradually expanding its employment opportunities. major employers include Contadina Foods, Carnation Can, Norris Industries, Thunderbolt Wood Treating, Monschein Cabinets, and Dura Bilt Truss. Cheese processing, construction, trucking, meat deboning, laminating, and health care are other major employers. Although many of these are agriculturally oriented, many of them are non-agricultural in nature. This trend should be encouraged.

Policy 5a:

The city will provide, through zoning, a variety of commercial and industrial zoned land to provide adequate choice.

Policy 5b:

To the extent possible, the city will ensure that public facilities are available to commercial and industrial land so that timely development can occur.

Implementation Measure:

1. Development fees, including sewer district, storm drainage district and park in lieu fees, shall be reviewed as necessary (but at least annually) to ensure they reflect current requirements.

Policy 5c:

The city shall cooperate with the Chamber of Commerce and the Stanislaus County Economic Development Corporation in trying to attract new businesses to Riverbank as well as to encourage retention and expansion of existing businesses.

GOAL VI

TO PROVIDE A FULL RANGE OF PUBLIC SERVICES AND FACILITIES FOR ALL AREAS OF THE COMMUNITY

In order to be able to accomplish many of the goals listed above, adequate public facilities, including sewer, water, storm drainage, streets, and parks are needed. Public services and facilities should be equally provided to all citizens while remaining within the fiscal restraints imposed on the city.

Policy 6a:

Public facilities should be extended in a planned, orderly manner.

Policy 6b:

A three year capital improvement program shall be adopted and reviewed annually so that major public improvement programs are planned and an overall view can be obtained of the direction the city is taking.

Implementation Measure:

1. The planning commission shall annually review the capital Improvement Program for consistency with the general plan. The CIP should provide for extension of public facilities as necessary.

Policy 6c:

Growth should occur only as public facilities are available to serve it.

Implementation Measure:

1. School facility needs must be provided for prior to approval of further residential development so that facilities will be available for students as the development occurs. This may be accomplished by a method satisfactory to the city, including but not limited to, formation of, or annexation to, a Mello-Roos District.
2. Fire suppression needs must be provided for prior to approval of further development.
3. Police facilities shall be adequate to handle the increased growth. Police shall be provided at the rate of one sworn officer for each 500 residents.
4. Parks shall be provided in the ratio of 2-1/2 acres of neighborhood park for each 1000 people and 2-1/2 acres of community park for each 1000 people.
5. Equipment used for the maintenance of parks, streets, sewer and water line shall be provided in the same ratio as existed in October 1989 (see appendix I of the Systems Development Fee Study 1989 Update.
6. Water wells will be provided at the ratio of one new well for every 500 new houses.

Policy 6d:

Capital costs of new development, including necessary public facility extensions shall be paid by the developers. Generally, this is accomplished by the payment of storm drainage plan fees, sewer service area plan fees and park in lieu fees, systems development fees, etc.

Policy 6e:

Development fees shall be reviewed as necessary (but at least annually) and updated to provide an accurate, current picture of the cost of development.

Implementation Measure:

1. Development fees, including sewer district, storm drainage district and park in lieu fees, shall be reviewed as necessary (but at least annually) to ensure they reflect current requirements.

GOAL VII

TO ENHANCE AND MAINTAIN THE QUALITY OF LIFE IN RIVERBANK AND TO ENCOURAGE A COMMUNITY IDENTITY AND A PRIDE IN THAT IDENTITY.

Riverbank is a small city where individual citizens feel a part of a single community. This feeling should be encouraged so residents feel they have control over how their community develops. Development that occurs should be attractive so that a pride in community is fostered.

Policy 7a:

Residential annexations to the City of Riverbank, or properties lying east of Old Oakdale Road, should be supported only for land within the Riverbank School District so that all children residing in the City of Riverbank are given the opportunity to attend Riverbank schools.

Implementation Measure:

1. Proposed annexations or subdivisions should not be approved unless the land to be annexed or subdivided is within the Riverbank Elementary School District.

Policy 7b:

The "entrance" to the city from the west shall be designated Planned Development Commercial so that the attractiveness of development along this section of Patterson Road is assured.

Policy 7c:

All areas annexed to the City of Riverbank or newly developed within the city should have Riverbank addresses and be served by the Riverbank Post Office.

Policy 7d:

Future growth should occur at an overall density within the sphere of influence of 4.63 units per gross acre which is consistent with the current development within the city.

CHAPTER III

LAND USE PLAN

In order to accomplish the goals, policies and implementation measures presented in Chapter II, the general plan designations listed below and the map entitled "1986 general plan land use element" have been adopted. Development of the sphere of influence are consistent with these designations would result in land use as shown in Table 2.

A. GENERAL PLAN DESIGNATIONS

The map includes designations for seven types of land use. The descriptions of these designations and appropriate locations for each are given below.

1. Low to Medium Density Residential. The "low to medium density residential" designation can be found in areas of predominantly single family homes and duplexes or where these residential types are proposed as appropriate. Most of the city and area within the sphere of influence is designated "low to medium density residential". The maximum allowable building intensity in this designation is 12 dwelling units per net acre which makes the maximum population density approximately 36-42 persons per net acre. Appropriate zones within this designation consist of R-1 (Single-Family Residential), R-2 (Duplex Residential), and PD (Planned Development) when the latter is for residential purposes and does not exceed the maximum permissible density for this designation.

2. Medium to High Density Residential. The "medium to high density residential" designation can be found along some major traffic corridors (i.e. Patterson Road, Claus Road, etc.) or as a buffer between low density residential districts and commercial or industrial designations. This designation can also be found in the area north of Patterson road between Eighth Street and Claus Road. The maximum building intensity allowed in this designation is 20 dwelling units per net acre which makes the maximum population density approximately 60-70 persons per net acre. Appropriate zones within this designation include R-2 (Duplex Residential), R-3 Multiple Family Residential) and PD (Planned Development) when the latter is for uses allowed in the above zoning districts and does not exceed the maximum permissible density for this designation.

3. Commercial. Land designated for commercial purposes is located in the central business district, along highway 108, and on both sides of Oakdale Road south of Patterson Road. A small amount is also located along Patterson Road between Callander and Roselle Avenues in recognition of existing commercial uses. Maximum residential building intensity allowed in this designation is 20 dwelling units per net acre which results in a maximum population density of 60-70 persons per net acre. Building

intensity for uses other than residential are governed by the zoning ordinance of the City of Riverbank. Appropriate zones within the "Commercial" designation include C-1 (Neighborhood Commercial), C-2 General Commercial), CM (Commercial-Industrial) and PD (Planned Development) when the latter is for uses allowed in the above zoning districts and does not exceed the maximum permissible density for this designation.

4. Planned Development Commercial. Land which is designated "Planned Development Commercial" is located along Highway 108 and may be zoned any of the zoning districts in the Riverbank City Code. However, in order to develop property for commercial purposes (regardless of whether the zoning allows commercial or not) the property must be rezoned to Planned Development. This designation exists in largely undeveloped areas planned for commercial development to ensure the quality of development. Residential uses are not considered consistent with the designation. Building intensity is governed by the zoning ordinance and building code.

5. Industrial. Land designated for industrial purposes is located along the railroad tracks between Roselle and Terminal Avenues, except the area south of Pocket Avenue between Roselle Avenue and the Santa Fe railway. Also included, are the Contadina Cannery (off Callander), Norris Industries (northeast corner of Claribel and Claus), several blocks just southwest of downtown, and the area bounded by Terminal, Claus, Minnier and Claribel Roads. Maximum density allowed in this designation is 20 dwelling units per net acre. Building intensity is governed by the zoning ordinance and the building code. Appropriate zones within the industrial designation include CM (Commercial Industrial), M-1 (Light Industrial), M-2 (Heavy Industrial), and PD (Planned Development) when the latter is for uses permitted in the above zones and does not exceed the maximum permissible density for this designation.

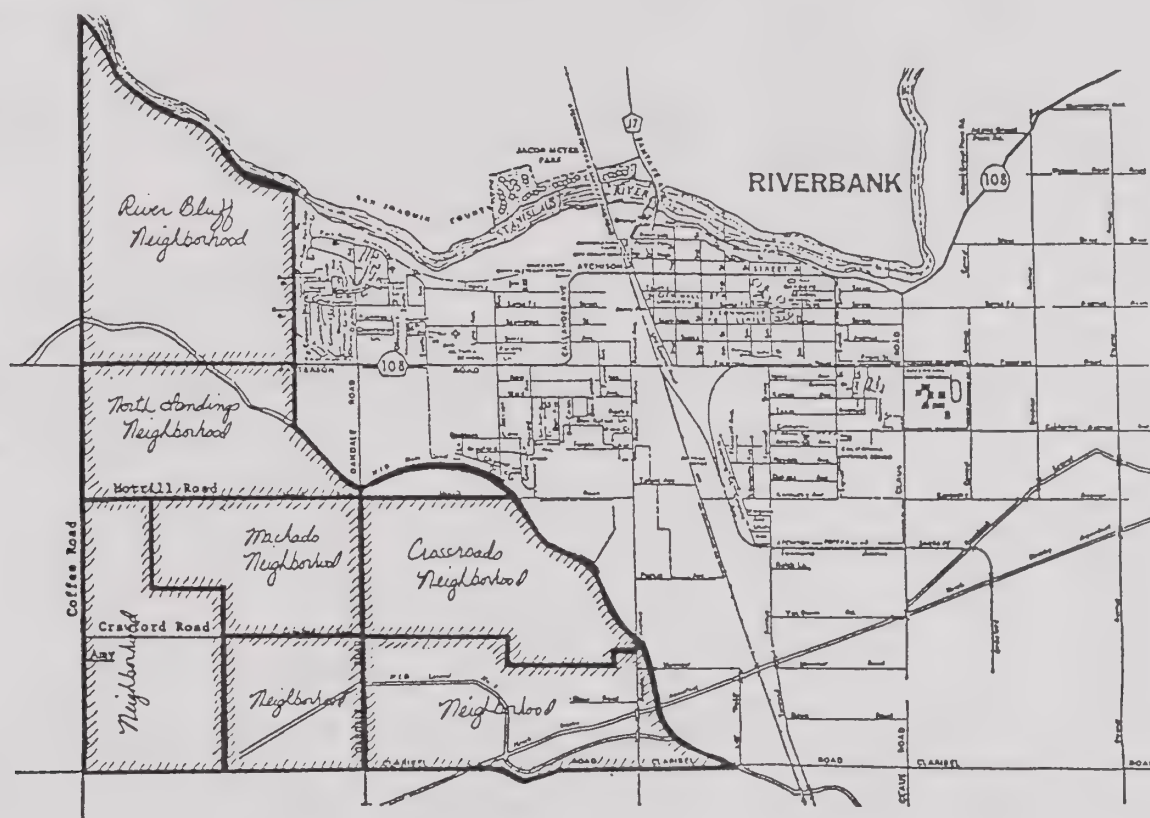
6. Parks. Land designated for park purposes is scattered throughout the city and includes both existing parks and proposed parks. This designation is based solely on the information presented in the "Open Space, Recreation, and Conservation Element" of this general plan. Any of the zoning districts in the Riverbank City Code is considered appropriate for this designation.

7. Public and Quasi-Public Buildings. Throughout the city are various public and quasi-public buildings that are shown under this designation. These buildings include schools, libraries, city hall, etc. Appropriate zones for this designation would be any of the zoning districts in the Riverbank City Code.

8. Reserve. This designation is intended for areas within the city's sphere of influence for which no specific land use designation is proposed. The only zoning district which is considered consistent would be the PD district which permits individual review of proposed uses.

9. Residential Reserve. This designation is appropriate for within the sphere of influence for which specific plans have not been adopted. These areas should be predominately residential in nature upon development. The city will proceed with specific plans for all areas which are within the sphere of influence as adopted by LAFCO. Changes in the general plan designation from "Residential Reserve" to a more specific designation shall not be approved except on a neighborhood basis. Generally, these new designations shall be one of the residential designations although some commercial designations shall be included to serve the needs of the residential area.

For the purposes of the "Residential Reserve" designation, the following seven neighborhoods are designated:



B. PROJECTED LAND USE

The designations listed in Section A above can be found on the land use element map of the city. In terms of zoning, the nine designations can be reduced to five types: (1) low to medium density residential, (2) medium to high density residential, (3) commercial, (4) industrial, and (5) residential reserve. The present city limits lacks a balance between some of these designations. For example, it is commonly acknowledged that we have a scarcity of rental housing. Although some of the inequities perceived with respect to high density zoning have been eliminated, additional land for this use will be needed in the future. Table 2 divides the acreage in the city and outside the city by land use type.

TABLE 2
Land Use - Existing and Proposed

Percent by Classification

Land Use Classification	In city		In county		Total	
	Acres	Percent	Acres	Percent	Acres	Percent
Low to medium density housing	663	58.0	865	26.0	1528	34.2
Medium to high density housing	139	12.2	33	1.0	172	3.8
Commercial	110	9.6	82	2.5	192	4.3
Industrial	231	20.2	384	11.5	615	13.8
Residential reserve	0	0.0	1963	59.0	1963	43.9
Total	1143	100.0	3327	100.0	4470	100.0

Percent by Location

Land Use Classification	In city		In county		Total	
	Acres	Percent	Acres	Percent	Acres	Percent
Low to medium density housing	663	43.3	865	56.6	1528	100.0
Medium to high density housing	139	80.8	33	19.2	172	100.0
Commercial	110	57.3	82	42.7	192	100.0
Industrial	231	37.6	384	62.4	615	100.0
Residential reserve	0	0.0	1963	100.0	1963	100.0
Total	1143	26.5	3327	74.4	4470	100.0

LANDUSE.01C

November 13, 1990

Amendment 05-90

CIRCULATION ELEMENT

CITY OF RIVERBANK

January 1990

RESOLUTION NO. 90-06

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF
RIVERBANK ADOPTING AN AMENDMENT TO THE CIRCULATION
ELEMENT OF THE RIVERBANK GENERAL PLAN

WHEREAS, Architectural and Subdivision Design Guidelines have been adopted by the City Council of the City of Riverbank following extensive review by the Planning Commission; and

WHEREAS, the Riverbank Planning Commission held public hearing to consider the revision to the Circulation Element on October 17, 1989, recommending that the amendment be approved; and

WHEREAS, the Riverbank City Council held a public hearing on November 13, 1989 to consider the proposed amendment.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Riverbank that Goal 1, Policy 3, Implementation Measure 3 shall be amended to read as follows:

3. Lots which front along an arterial without direct access shall have such access restricted by a solid masonry wall of a height to be determined as a condition of approval of tentative subdivisions maps. This wall shall be set back if necessary so that a 10-foot wide sidewalk can be constructed adjacent to the arterial. As an alternative to the fencing requirement, the use of open-ended cul-de-sacs may be permitted at the discretion of the Planning Commission and City Council.

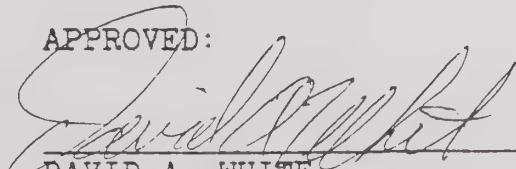
PASSED AND ADOPTED this 8th day of January, 1990, by the following vote:

AYES: Councilmembers Neal, Lemmons, Porter, Johnson, and Mayor White.

NOES: None.

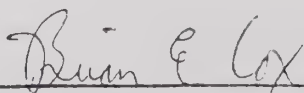
ABSENT: None.

APPROVED:



DAVID A. WHITE
MAYOR

ATTEST:



BRIAN E. COX
CITY CLERK

CHAPTER 3

GOALS, POLICIES AND IMPLEMENTATION MEASURES

The first two chapters of this element described the projected needs of the city and the plans for meeting these needs. This chapter will include the goals, policies and measures to be used in implementing the plan.

Goal 1

TO PROVIDE A SYSTEM OF STREETS AND ROADS THROUGHOUT THE CITY WHICH REFLECT LAND USE NEEDS

Policy 1

Development will be permitted only when facilities for circulation exist, or will exist as part of the development, to adequately handle increased traffic.

Implementation Measures

1. Future road and street rights-of-way shall be protected from development through the adoption and implementation of official plan lines where necessary. (Official plan lines are used when it is undesirable or impractical to widen a road by requiring equal dedication on both sides of the existing center line.
2. Dedication and improvement of right-of-way to conform to the adopted plan line or ultimate right-of-way line shall be required as a condition of development. Generally, this is accomplished through zoning ordinance and subdivision ordinance or building code requirements.
3. Traffic control devices (e.g. traffic signals and stop signs) shall be utilized to control the flow of traffic and minimize delays. Stop signs (including four-way stop signs) shall be used until traffic signals are absolutely necessary.
4. Developers will pay the cost of new roads and streets necessary to serve the development and pay costs to mitigate impacts to the existing roads and streets caused by the development. Developers may be required to provide a traffic study of impacts and possible mitigation measures for projects with the potential of causing significant impacts.

Policy 2

Arterials shall have a Level of Service of "C" or better at buildout of the General Plan boundary.

Implementation Measures

1. Development and street construction shall be monitored so that, at such time as the General Plan boundary is

reached and roads are fully developed, the Level of Service on all arterials is at least level "C".

2. Developers will pay the cost of new roads and streets necessary to serve the development and pay costs to mitigate impacts to the existing roads and streets caused by the development. Developers may be required to provide a traffic study of impacts and possible mitigation measures for projects with the potential of causing significant impacts.

Policy 3

Circulation systems shall be designed to promote safety and minimize traffic congestion.

Implementation Measures

1. Traffic control devices (e.g. traffic signals and stop signs) shall be utilized to control the flow of traffic and minimize delays. Stop signs (including four-way stop signs) shall be used until traffic signals are absolutely necessary. When traffic lights are used, the city shall consider converting the lights to flashing red during non-peak hours.
2. Future residential lots shall not have direct access to arterials unless the area is already predominantly developed with lots having access. This determination shall be made by the planning commission or city council whichever is the final decision making body.
3. Lots which front along an arterial without direct access shall have such access restricted by a solid masonry wall of a height to be determined as a condition of approval of tentative subdivision maps. This wall shall be set back if necessary so that a 10-foot wide sidewalk can be constructed adjacent to the arterial.

As an alternative to the fencing requirement, the use of open-ended cul-de-sacs may be permitted at the discretion of the planning commission and city council.

4. No new local streets shall be permitted to intersect arterials unless it is determined that the circumstances of the particular case are unique and require an exception to this policy. Financial hardship shall not be considered a unique circumstance.
5. Future requests for parcel splits shall be consistent with Policy 3 of this Circulation Element.
6. Future commercial and industrial development along arterials shall be limited to no more than one driveway (access) every 200 feet. If parcels existed as of June 1, 1987 of less than 200 feet in width, commercial or

industrial development shall require cooperative agreements between adjoining property owners to allow common access points so that no more than every other property has direct access to the arterial.

7. A second overpass will be provided across the railroad tracks to connect Kentucky Avenue and Talbot Avenue.
8. Except in very small subdivisions where such a requirement is impossible, a majority of streets in a subdivision shall be curved to provide a varied view of the houses. No straight street shall be longer than 500 feet.

Policy 4

A circulation system shall be developed that includes streets as necessary to provide access to all parts of the city based on the anticipated land use.

Implementation Measures

1. The city will require that newly created parcels will have frontage on a city maintained street.
2. All streets shall be at least 60 feet in width with collectors located as necessary to provide access to more than 50 dwelling units.
3. Developers will pay the cost of new roads and streets necessary to serve the development and pay costs to mitigate impacts to the existing roads and streets caused by the development.
4. A second overpass will be provided across the railroad tracks to connect Kentucky Avenue and Talbot Avenue.
5. The city shall develop standards to clarify construction requirements of all types of roads

Policy 5

Adequate parking facilities shall be provided to prevent congestion of streets and provide easy access to all destinations.

Implementation Measures

1. The city shall monitor the needs of commuters and, should parking become a problem, will consider the provision of a park-and-ride lot.
2. All parking areas shall include shade trees in a ratio of at least one tree for every five parking spaces. These trees shall be dispersed throughout the parking area with at least 20 percent of them being interior trees.

Goal 2

TO SUPPORT A BROAD RANGE OF TRANSPORTATION MODES

Policy 6

Bikeways and pedestrian paths shall be routed to provide reasonable access from residential areas to major bicycle and pedestrian traffic generators such as schools, recreation facilities, centers of employment, and shopping areas.

Implementation Measures

1. The city shall investigate funding to provide sidewalks throughout the City of Riverbank including money to retrofit existing curbing to serve the handicapped.
2. The city shall require the construction of sidewalks whenever it has the opportunity.
3. Bikeways and pedestrian paths shall be considered when constructing or improving the road and street system in the city.
4. Diagonal parking in residential areas shall eventually be eliminated and the additional space shall be used for Class II bike lanes.

Policy 7

Provide for the public transit needs of city residents.

Implementation Measures

1. The city shall support the county's efforts to provide a dial-a-ride system.
2. The city shall monitor the needs of commuters and, should parking become a problem, will consider the provision of a park-and-ride lot.
3. Development proposals along Highway 108 may be required to provide bus turnout lanes and covered bus stops as a condition of approval.

CIRC.02C

January 8, 1990

CIRCULATION ELEMENT

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CHAPTER 1

INTRODUCTION

Government Code Section 65302(b) requires "a circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan". The guidelines adopted by the state Office of Planning and Research to implement Section 65304 (b) states that "the circulation element should cover the following to the extent that they pertain to the community:

- ♦ Streets and highways
- ♦ Parking facilities
- ♦ Transit and rapid transit
- ♦ Railroads
- ♦ Paratransit (e.g. jitneys, carpooling, and taxi service)
- ♦ Bicycle and pedestrian facilities
- ♦ Commercial, general, and military airports, and
- ♦ Navigable waterways, harbors (deep-draft and small boat), and terminals

Most of these areas will be covered in the City of Riverbank Circulation Element. The only subject with no possible connection to the city would be navigable waterways, harbors and terminals.

Vehicle Registration

Motorized vehicle registration has been increasing even faster than the population. Historical data on vehicle registration is only available back to 1965 on a county-wide basis. From 1965 to 1980 vehicle registration increased by 90.5 % while county-wide population increased by only 51.2%. The result is that the number of vehicles per person has increased from 0.605 vehicles per person in 1965 to 0.763 in 1980. If this trend were to continue, the number of vehicles would exceed the number of people in the county by the year 2000. This assumes that the growth rate of both population and registered vehicles will remain constant. This is difficult to predict. From 1965 to 1980, the percentage increase every five years became further and further apart. From 1965 to 1970 the percentage increase of vehicles was 15.8% while the increase of population was 10.6%, a difference of 5.2%. In 1980, the increase of vehicles since 1975 was 33.5% while population had only increased 18.3%, a difference of 15.2% Yet from 1980 to 1987, vehicles increased by 23.5%

while population increased by 20.6%, a difference of only 2.9%.

TABLE 1
Vehicle Registration vs. Population
Stanislaus County

Year	Vehicles Vehicles/Person	Percent Increase	Population	Percent Increase	
1965	106,472		175,900		0.605
1970	123,295	15.8%	195,506	10.6%	0.634
1975	151,888	23.2%	224,709	15.5%	0.676
1980	202,797	33.5%	265,902	18.3%	0.763
1987	250,431	23.5%	320,645	20.6%	0.781

No specific information exists on the number of households that have unmet transportation. Information from the 1970 and 1975 Census' did not deal with the subject. The 1980 information only informs us that 126 people in the city have a public transportation disability. Whether or not these people have alternate forms of transportation is not known. It could be logically assumed that some of these or other households in the community have unmet transportation needs. Providing for these needs may not be reasonably met nor economically feasible. Since most of the people who have problems with public transportation are elderly (115 of the 126 people), the city and county provided, on a trail basis, a dial-a-ride program for senior citizens in Riverbank. The demand was not great enough to warrant continuation of the service.

Accident History

During the last update of the Circulation Element in 1981, there had been 144 accidents in the preceding 12 months. As indicated at that time, these accidents were pretty well spread out throughout the city although most of them occurred along the Highway. This is still the case. In 1986, there were 146 accidents, 55 of which were along the Highway. The others were scattered throughout the city with no special pattern standing out. Discussions with the police department indicate they feel the worst problem is along the highway but that there is not anything that can be done about it through policies, etc. in the Circulation Element.

CHAPTER 2

CIRCULATION PLAN

Transportation throughout an area can be accomplished by many different means. These means include airplanes, helicopters, cars, trucks, motorcycles, bicycles, buses, trains, boats, rapid transit (such as BART), and feet (walking). Airplanes and helicopters generally use airports and heliports; trains use railroad tracks; boats use water; and rapid transit facilities use specialized tunnels, tracks, etc. The remainder of the means of transportation (cars, trucks, motorcycles, bicycles, buses and feet) generally use the street and highway system although bicycle and pedestrian facilities are sometimes separate.

In the introduction, eight areas to be studied were mentioned. These include streets and highways, parking facilities, transit and rapid transit, railroads, paratransit, bicycle and pedestrian facilities, airports, and waterways. The latter will not be discussed as it is not applicable. The remainder of the items are all connected to streets and highways either by virtue of using them for travel or as connectors. Streets and highways shall be discussed last in order to provide a relationship between the other types of transportation.

On a regional basis the city is rather centrally located. Although not on Highway 99 or 5 (the major north-south highways), it is situated on Highway 108 providing access to the Sierra Nevada mountains. It is also on the main route from Modesto to Oakdale. Although the city has easy access to air and bus service, no such facilities are actually located in the city. As discussed, the city, does have an Amtrack station providing convenient rail service.

Railroads

The Atchison, Topeka and Santa Fe Railroad runs on a northwest to southeast direction through the center of town. Approximately 14-20 trains a day run through the town on the main tracks with about one a day on the spurs along Townsend Avenue and along Patterson Road. The northern Amtrak station in Stanislaus County is located in Riverbank on Talbot Avenue. Two southbound trains (one morning, one evening) and two northbound trains (one morning and one evening) stop in Riverbank every day. In addition to passenger trains and through trains, the railroad serves the ammunition plant at Claus and Claribel Roads with a spur along Townsend Avenue. The Contadina Can Plant and Cannery are located adjacent to the main line and are served by it. A line branches off from the main line and runs along Patterson Road towards Oakdale.

With only four trains a day out of 14-20 total being passenger trains it is obvious that most of the trains used are for transporting goods. Most of the city's industrial zoning can be found

along the railroad tracks in anticipation of new development making use of this means of transporting their goods.

As the rails continue north, they go as far as Stockton, turning west to San Francisco at that point. From San Francisco a person can continue north or go east through Sacramento, Reno, etc. One can also go to the south to Los Angeles from San Francisco and then south or east from there. From Riverbank a person can only go as far as Bakersfield by train. Connections can be made by bus from Bakersfield to Los Angeles.

It is anticipated that the land on both sides of the railroad tracks will develop with industrial uses and the Land Use Element of the General Plan reflects this circumstance. The railroad has indicated its willingness to serve future industrial uses in this area.

The Amtrak station in Riverbank has been the subject for some controversy over the years. Since Amtrack uses the Santa Fe lines, the logical place for a station would be in Riverbank, Empire, Hughson or Denair. Stations now exist in both Riverbank and Denair. Modesto has been lobbying to move the station and the route to the tracks which traverse Modesto. The rationale is that connections would be much easier to make and usage of the train would increase. The city has opposed relocation of the depot outside the Riverbank area and should continue to do so.

Transit and Rapid Transit

The City of Riverbank is currently served by the Modesto-Riverbank-Oakdale Transit System run by Storer Transportation. Five round trips a day are made between Modesto and Oakdale. Further transit improvements for inter-city transportation would not be cost effective until the city begins to approach the 20,000 figure.

A few years ago the county, at the request of some of the citizens in Riverbank began a dial-a-ride service for the City of Riverbank. The service was available to elderly and handicapped persons. A trial period indicated that there was not enough usage to warrant continuance.

In January, 1987 the county began a Central Dial-a-Ride service which serves all of the cities in the county except Newman and Patterson. The service is available on Monday, Wednesday and Friday of each week usually during normal working hours. In order to use the dial-a-ride, a person must initially fill out and return a form for the transit company to keep on file. Door to door service is available but reservations must be made at least 24 hours in advance and scheduling may require that a person be transported slightly earlier or later than they might wish. The system was funded for a 6 month trial period which has been extended until the end of 1987. According to the transit coordinator for the county, the service is likely to continue after that date unless unexpected problems surface.

Although no Greyhound or Trailways facilities exist in the city such services are available in Modesto. Buses depart from that location regularly going north, south and west. Easterly bound buses usually leave from Los Angeles, Bakersfield or Sacramento.

In an area as spread out and rural as Stanislaus County a rapid transit system has not been discussed much until recent changes in the commuting pattern from the Bay Area have occurred. With the influx of bay area workers to the valley, discussions are taking place about the possibility of extending some sort of rapid transit system, presumably BART, over the hills to Tracy.

Paratransit

The term paratransit includes such means of transportation as jitney's, carpooling, vanpooling, and taxi service. there is basically not jitney service in Stanislaus County, and, as far as we know, very little vanpooling. What vanpooling exists is used by commuters to the bay area. Taxi service is only available through a Modesto taxi service, nothing is local.

Carpooling became more popular in the county during the early 1980's with the higher gas prices. The county Planning Department coordinated ridesharing through a computerized system which was available to anyone in the county. Inter-county linkages were possible through cooperation with Caltrans. More recent changes have shifted the coordination duties to Caltrans and now to SAAG.

Airports

There are three airports within 25 miles of Riverbank. The Modesto City-County Airport (Harry Sham Field) is approximately 7-8 miles south of Riverbank and is open to general aviation as well as supplying commercial air service. The Stockton Airport is approximately 25 miles northwest of the city and also provides commercial air service and is open to general aviation. The Oakdale Airport, a publicly owned airport approximately 7-8 miles east of Riverbank, provides service for general aviation only. These airports combined with the San Francisco Airport about 90 miles to the west serve the needs of the City of Riverbank and should be adequate for the foreseeable future.

Parking Facilities

Existing parking facilities include a city parking lot at the corner of Stanislaus and Third Streets and individual, privately owned parking provided in connection with a specific business. Street parking is usually parallel parking although throughout the downtown business area and around the Community Center, diagonal parking is allowed.

The existing facilities appear to be adequate. There are usually parking spaces within 100 feet of the business to which a person

wishes to go. With the exception of major activities like the Cheese and Wine Festival, parking is always available within a block of a persons's destination. The only real problem with existing parking facilities is the hazards of diagonal parking. The city council has attempted to eliminate much of this diagonal parking, especially in the residential areas, but the residents in the city were very vocal in their opposition to this move. It is unlikely that there will be any major changes in the diagonal parking policy in the near future.

Until the zoning ordinance was adopted in 1960 parking was provided either on the street, by city owned parking lots, or voluntarily by an individual who desired to provide additional parking for his/her home or business. After the zoning ordinance was adopted, developers were required to provide certain proportions of off-street parking depending on the business being proposed. These zoning ordinance requirements remained unchanged from 1960 to 1980 although the number of cars requiring parking space increased dramatically (see Chapter I). In December, 1980 the entire off-street parking ordinance was updated to more accurately reflect current parking practices. As time passes the ordinance will need to be updated to provide for changing conditions. For example, while the number of cars may increase, the cars are getting smaller thus requiring more but smaller spaces. This is reflected in the 1980 changes which increased (sometimes doubling) the number of spaces required but reducing the width of aisles and allowing a proportion of spaces to be "small car" spaces.

Bicycle Facilities

There are three main classes of bicycle facilities. Class I bicycle routes are completely separated rights-of-way designated for the exclusive use of bicycles. these routes can be found in parks, parkways with exceptionally wide median or other areas with sufficient space to provide the path. A Class I "bike path" requires at least 11-14 feet of width depending on whether bicycle traffic will be one way (11 feet) or two way (14 feet). If the pathway is to parallel a street, it must be separated by at least 5 feet. Figure 1, Bike Paths, indicates the standards used in Class I bike paths and an example of a Class I bike route. It is the city's policy to develop Class I bike paths only where Class II and III facilities are inappropriate since there are no logical sites for Class I bike paths and since the cost of construction is so high.

Class II bike routes are restricted rights-of-way which, although they are not separated from the street, are designated for the exclusive or semi-exclusive use of bicycles (commonly called "bike lanes"). Generally these are five foot wide bike lanes located between the parking lane and the motor vehicle lane. Figure 2, Bike Lanes, shows the standards for Class II bike lanes and the manner in which they are usually provided. Class II bike lanes are usually found on collectors and arterials. The only Class II bike lane currently existing in Riverbank is along

Figure 1
Bike Paths

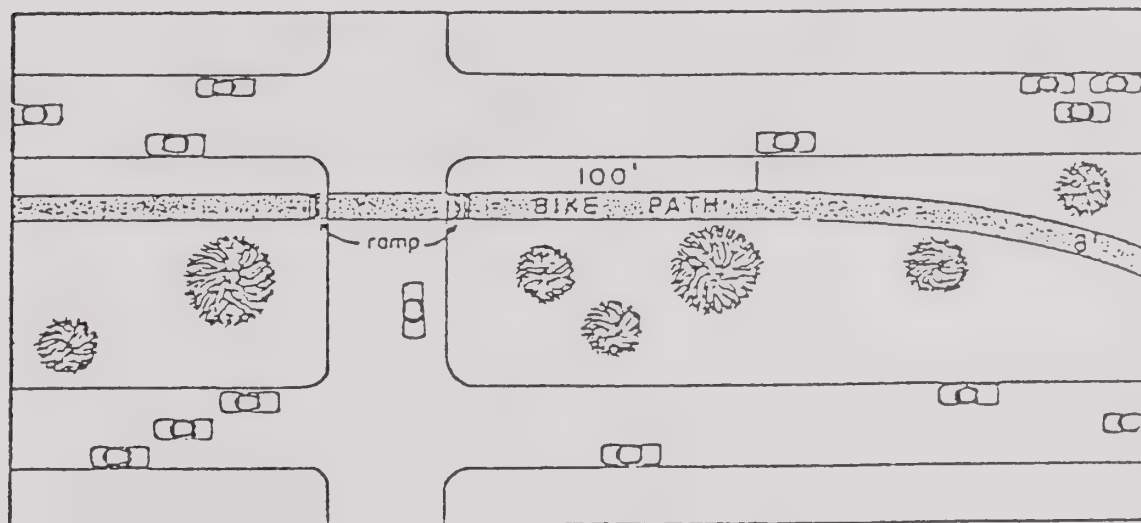
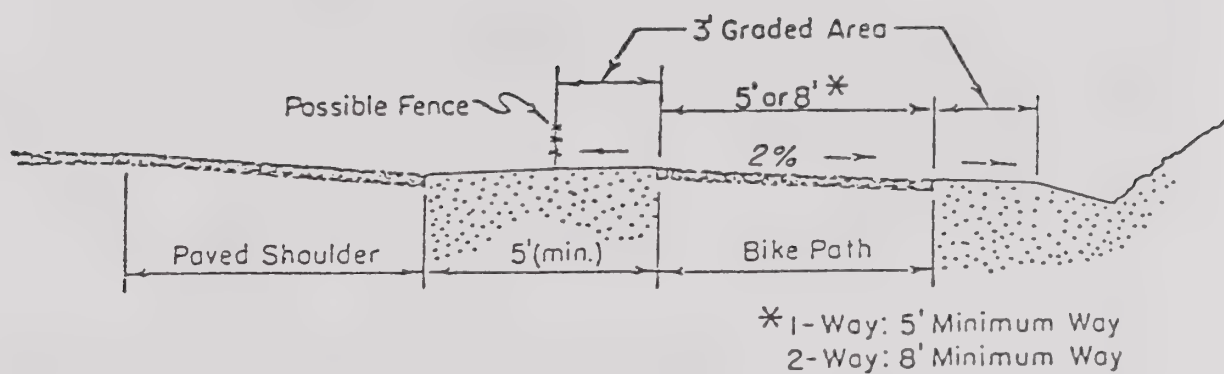
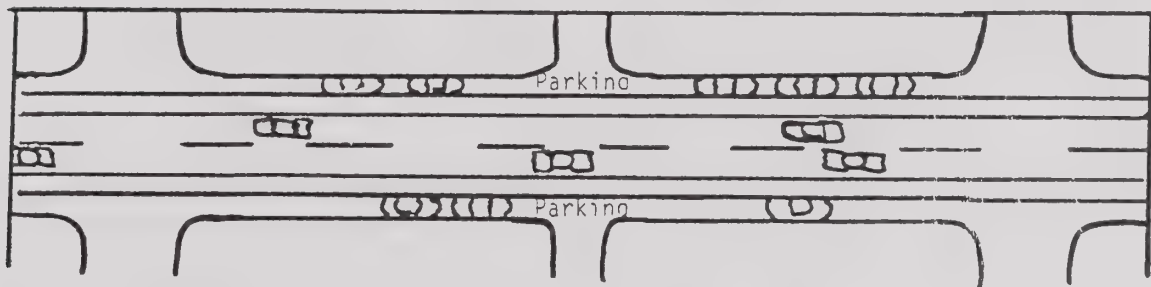
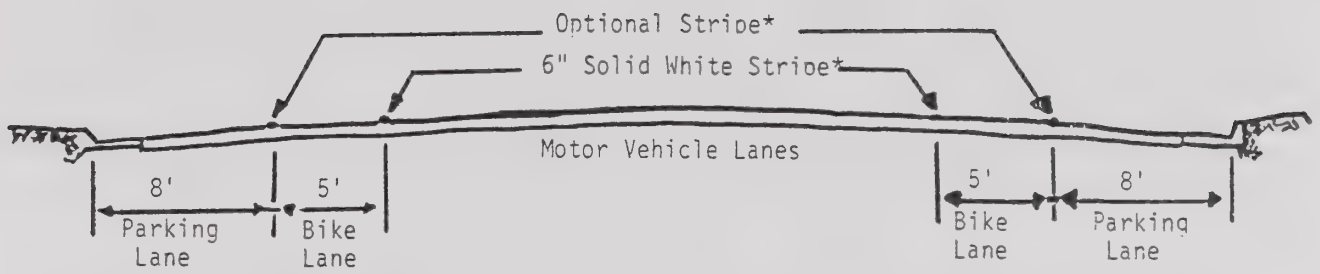


Figure 2
Bike Lanes



Patterson Road from the A.T. & S.F Railroad tracks to Claus Road. At present this is the only bicycle lane or route that is marked in the city.

Class III bike routes have a right-of-way that is shared with vehicles or pedestrians and consists mainly of signing the route to encourage bike traffic. No specific bike "lanes" are provided although some additional pavement width is desirable. although less safe than either Class I or II bike facilities, bike routes do offer several advantages. The only expense is in providing the appropriate signs designating the route. These signs not only encourage the use of the route by bicyclists, they warn the motorist to be on the alert for bicycles. Class III bike routes should only be located on streets of low traffic volume. Many of the streets in the city already exist with full street improvements and are not suitable for the addition of designated bike lanes.

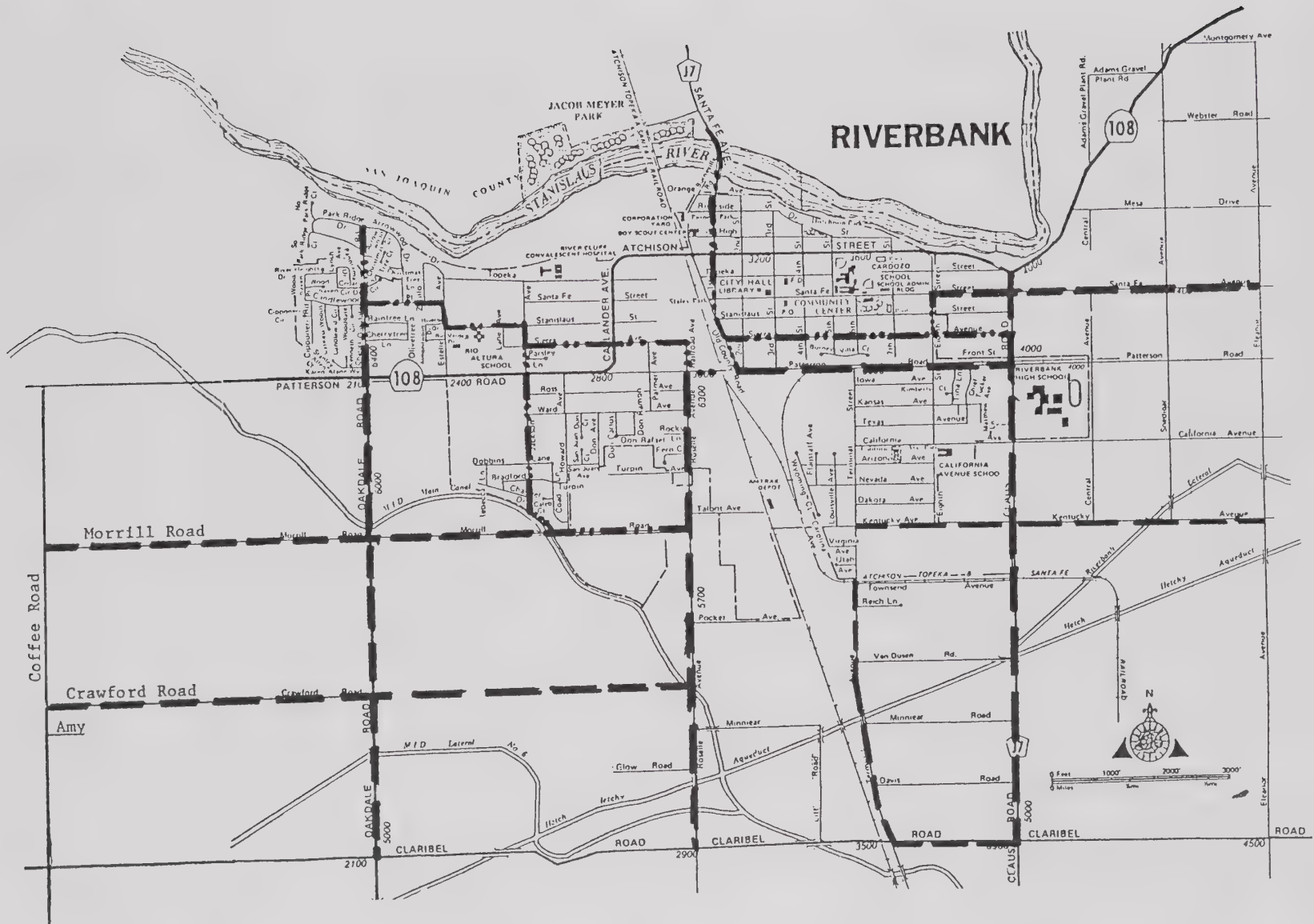
Figure 3, Bike Routes, indicates the proposed location of Class II and III bike facilities. Standards for the development of these streets are presented in Appendix 2. Additional bike lanes and bike routes will be evaluated, if proposed, on a case by case basis based on need and feasibility. While the designations shown on Figure 3, Bike Routes, are not exclusive, they do seem to fulfill the needs as described in the preceding sections.

In addition to bike lanes and bike paths, some provision should be made for parking bicycles at their destinations (i.e. stores, shopping centers, schools, etc.). In new development over which the city has some permit authority, bike racks can be required as a condition of approval. In other cases, the existing owner may be encouraged to add such facilities or the city may investigate possible funding sources.

Streets and Highways

1. Pedestrian Facilities. Generally pedestrian facilities are provided by sidewalks along the roadway. One of the city's ongoing concerns has been the lack of adequate pedestrian access across Callander Avenue. Traffic is such that crossing is difficult and often dangerous. The idea of a pedestrian overcrossing was discussed at one time but there is no logical location for such a structure. The possibility of a traffic light at some point along Callander has also been discussed and may become a reality one day. This would greatly aid both vehicular and pedestrian traffic.

Provisions should also be made to provide handicapped persons with access to all areas of the city. The means of providing access differ between those areas already existing and those proposed. New construction includes the requirement for handicapped ramps at intersections and building code requirements ensure access to new buildings. Retrofitting existing facilities is not as easy. The building code requires such retrofitting of buildings when a certain



Bike Routes

Figure 3

amount of remodeling is done. This can involve enlarging restrooms, hallways, etc. Retrofitting can also include reconstruction of curbs, gutters and sidewalks at intersections and enlarging driveways. Unless the city commits money towards retrofitting public improvements, little will be done in the way of making public facilities accessible.

2. Road Classifications. Streets and highways provide either the surface for the above mentioned means of transportation or exist as connectors between them. For example, in the case of parking facilities, airports, railroads and rapid transit facilities the street and highway system provide access to the rather concentrated facilities (i.e. airport terminal, train depot) and aid in moving goods and people. The other transportation facilities such as transit, paratransit, bicycle and pedestrian facilities generally use the street system as its main traveling surface. Occasionally these means of movement operate independent of the street system as in the case of pedestrian over crossings but sidewalks along the edge of the street are more normal. In any case all other transportation is at least partially dependent on an adequate street system. A nearby airport or railway depot is not of much use unless a person can get from the airport or depot to his exact destination (i.e. home, office, etc.).

There are usually four or more classifications of roads. The four classifications used by the National Committee of Urban Transportation are typical and expressway, arterial, collector and local. Some sources break these classifications down further into major arterials and arterials, major and minor collectors and cul-de-sacs. Presented below are fairly standard definitions for the major classifications.

EXPRESSWAYS are usually multi-lane, divided roads with few, if any, intersections at grade, with access strictly controlled. Expressways generally serve large volumes of traffic (over 40,000 trips per day) going at fairly high speeds (50-60 m.p.h.). Trip length usually exceeds one mile. Right-of-way is usually over 100 feet wide and includes at least 4 traveling lanes, two emergency parking lanes and a median of 20-40 feet.

ARTERIALS are also multi-lane roads which connect principal traffic generators or provide movement of large quantities of traffic through an urban area. Arterials generally serve a moderate amount of traffic (10,000-40,000 trips per day) with an average trip length of one mile. Right-of-way ranges from 70-100 feet wide and consists of four (4) traveling lanes and two parking lanes.

COLLECTOR streets serve internal traffic movements within a neighborhood or subdivision and connect this area with the arterial system. Collectors are not generally long streets nor do they handle long trips. Approximately 1,500 to 10,000 trips per day can be expected on such streets. Right-of-way width is

usually about 60 feet with two lanes of traffic and two parking lanes.

LOCAL streets provide access to adjacent land and are the majority of streets in a city although they carry a small proportion of the vehicle miles of travel. Each local residential street probably carries less than 1000 trips a day although near the central business district the volume may be much higher. The number of driving and parking lanes is the same for a collector but are narrower, making a typical right-of-way of 50 feet.

In cities of less than 25,000 people it is generally assumed that there will be no expressways. Arterials and collectors ideally comprise 25-35% of the street system mileage in a city with the remainder in local streets. The city of Riverbank has approximately 45% of its mileage in arterials and collectors. Once the entire planning area is urbanized according to the proposed plan, this will drop to about 38% or less. The current large proportion of arterials and collectors is due to the large number of existing wide streets in central Riverbank and Highway 108. As the city has expanded, collectors have been placed further apart. The State Highway 108 accounts for approximately 1/4 of the current arterial and collector mileage.

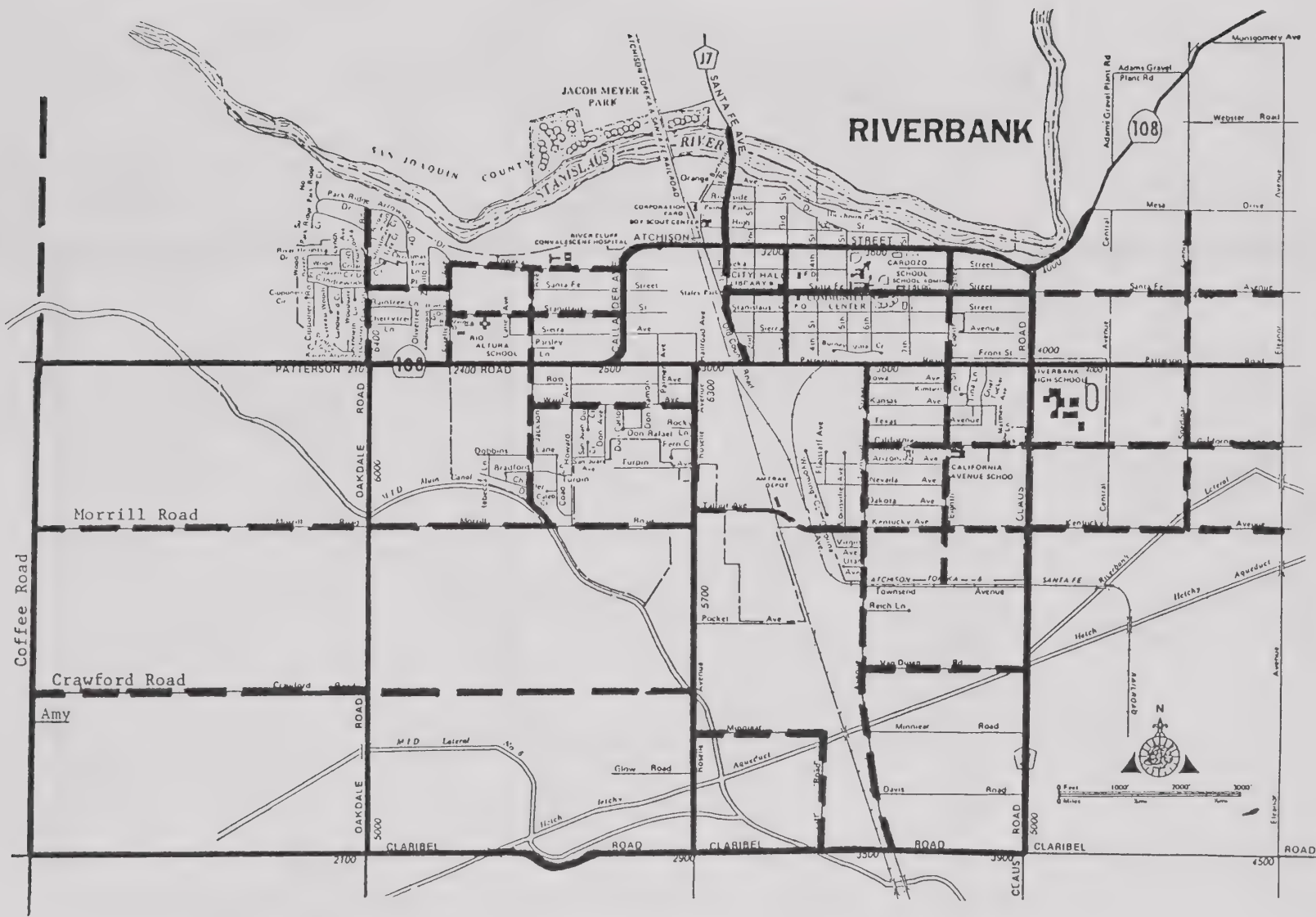
Figure 4, Arterials and Collectors, indicates the locations of existing and future arterials and collectors. In reviewing the adequacy of the existing road system and its arterial-collector-local classifications, several means were used. The projected growth was established. These population projections were converted into vehicle trips per day. Existing road traffic was reviewed and added to the traffic projections. The result was that the existing road classifications were found to be sufficient for the area covered. None of the arterials will surpass the 40,000 trips per day criteria, most will not even approach this limit. the collectors will likewise be limited to less than 10,000 cars a day.

Development of the existing arterials has varied considerably. Most of the arterials are rural, two-lane roads which have not been developed to their ultimate width. Third Street, Santa Fe from 1st Street to 8th Street, and Atchison Street from the Railroad Tracks to 8th Street have been developed to their full widths of 100 feet, 100 feet and 80 feet, respectively. None of the other arterials have been developed as yet although dedication of right-of-way is being required in connection with development permits. Approximately half of the collectors are developed to a full 60 foot width road. The remaining collectors are partially developed or are not yet in the city.

3. Truck routes. In addition to designating certain streets as arterials and collectors, several streets in the city have been designated as truck routes. With the exception of the streets shown in Figure 5, Truck Routes, vehicles (including trucks) with a maximum gross weight of over 5 tons are not allowed however, trucks may go "by direct route to and from

Figure 4

Arterials and Collectors



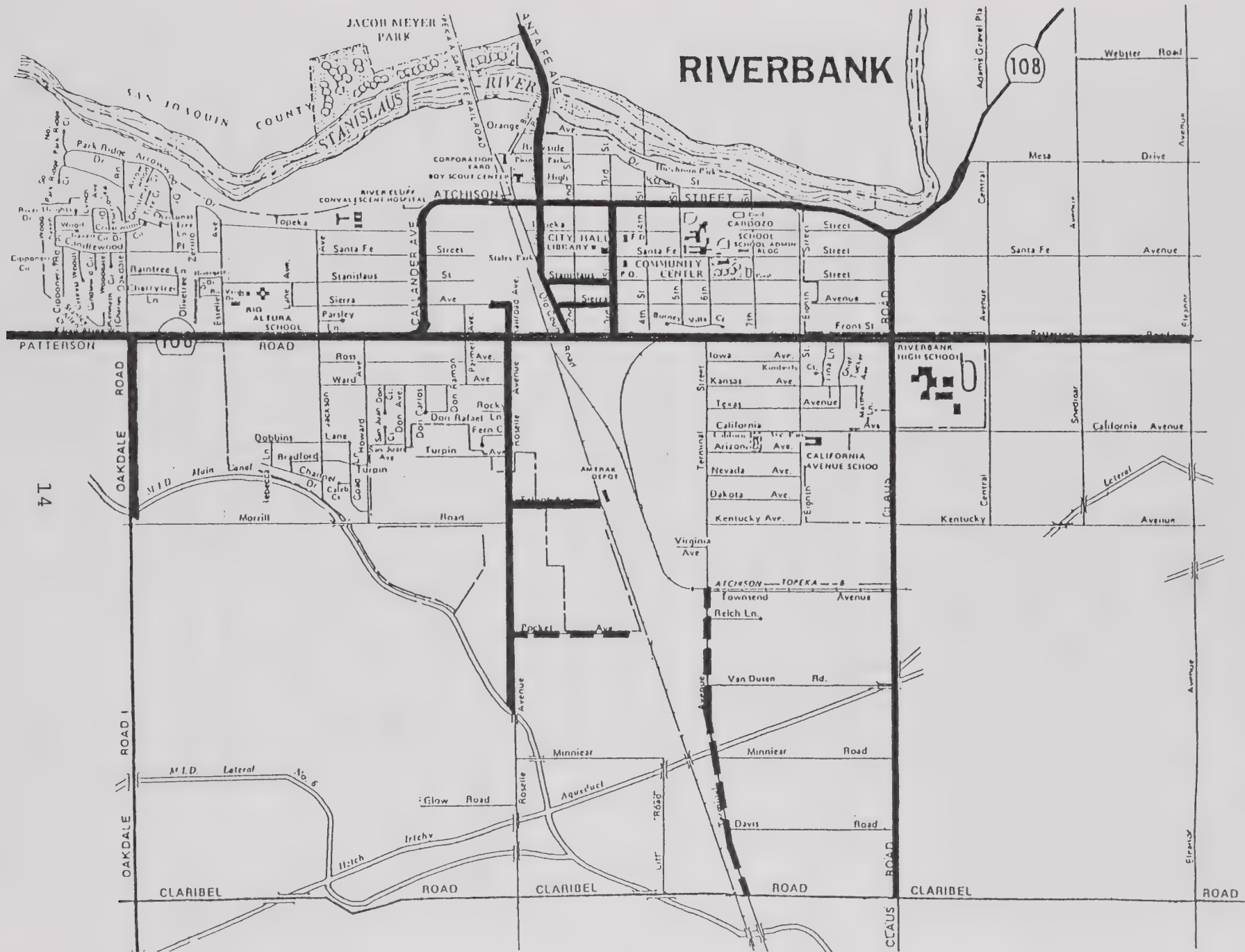


Figure 5
Truck Routes

restricted streets where necessary for the purpose of making pickups and deliveries of goods, wares, and merchandise from or to any building or structure located on such restricted streets" (Section 9-4-1 of the City Code). This section of the City Code was last amended in 1982. Figure V includes existing truck routes plus those streets which are proposed to be added as truck routes upon annexation. The latter will have to be added to the City Code at such time as the streets are annexed.

4. Street standards. As discussed earlier, the widths of streets may vary depending upon their frequency of use, whether or not bike lane(s) are proposed and whether or not land is available for an ultimate width. Collectors are almost always 60 feet wide and in the City of Riverbank will always be 60 feet wide unless additional width exists at the time of this element. Collector streets shall include, but not be limited to, the following street segments:

- ♦ California Avenue, from Terminal Avenue to Eleanor Avenue
- ♦ Candlewood Place, from Oakdale Road to Estelle Avenue
- ♦ Claribel Road, from the MID Main Canal to Claus Road
- ♦ Coffee Road, north of Patterson Road
- ♦ Crawford Road, from Coffee Road to Roselle Avenue
- ♦ Eighth Street, from Patterson Road to Townsend Avenue
- ♦ Estelle Avenue, from Topeka Street to Patterson Road
- ♦ First Street, from Atchison Street to Patterson Road
- ♦ Jackson Avenue, from Topeka Street to Morrill Road
- ♦ Kentucky Avenue, from the Santa Fe tracks to Eleanor Avenue
- ♦ Litt Road, from Minniear Road to Claribel Road
- ♦ Minniear Road, from MID Main Canal to Litt Road
- ♦ Morrill Road, from Coffee Road to Roselle Avenue
- ♦ Oakdale Road, from Arrowwood/Park Ridge Drive to Patterson Road
- ♦ Santa Fe Street, From Claus Road to Eleanor Avenue
- ♦ Snedigar Avenue, from Mesa Drive to Kentucky Avenue
- ♦ Stanislaus Street, from Estelle Avenue to Callander Avenue
- ♦ Talbot Avenue, west of Roselle Avenue

- ♦ Terminal Avenue, from Patterson Road to Claribel Road
- ♦ Topeka Street, from Estelle Avenue to Callander Avenue
- ♦ Van Dusen Road, from Terminal Avenue to Claus Road
- ♦ Ward Avenue, from Jackson Avenue to Roselle Avenue

Arterials however, vary widely in width. Table 2, Width of Arterials, indicates the ultimate right-of-way widths of the designated arterials in the city's General Plan.

5. Scenic Highways. As can be quickly ascertained from review of a map of the city, none of the roads, streets, or highways are, or have the potential to be, scenic highways. As a result, there are none so designated.
6. Other Uses. At the present time streets and highways are so developed that they provide not only vehicular access to various portions of the city but also provide limited on-street parking, pedestrian sidewalks, and public utility easements for facilities such as telephone lines, electrical lines, sewer lines, etc.

Table 2

Width of Arterials

<u>Street Segments</u>	<u>Width</u>
Atchison, First Street to Claus Road	80 feet
Claus Road to Eastern city Limits	100 feet
Callander Avenue, all	100 feet
Claribel Road, from Coffee Road to Claus Road	100 feet
Claus Road, all	100 feet*
Coffee Road, from Patterson Road to Claribel Road	100 feet
First Street, north of Atchison Street	60 feet**
Oakdale Road, from Claribel Road to Patterson Road	100 feet
Patterson Road, Coffee Road to Callander Avenue	110 feet
Callander Avenue to railroad	60 feet
Railroad to eastern city Limits	80 feet
Roselle Avenue, Patterson Road to Turpin Road	66 feet***
Turpin Road to Claribel Road	100 feet
Santa Fe, First Street to Eighth Street	100 feet
Eighth Street to Claus Road	70 feet
Third Street, Atchison Street to Patterson Road	100 feet

* Claus Road has a specific plan line that has been adopted by the county following public hearings.

** No on-street parking is allowed on this section of First Street

*** The 66 foot right-of-way to consist of the following facilities from west to east: sidewalk, 5 feet; parking lane, 8 feet; four driving lanes of 12 feet each (48 feet total); and, bike lane, 5 feet. There will be no parking or sidewalk on the east side of the street.

CHAPTER 3

GOALS, POLICIES AND IMPLEMENTATION MEASURES

The first two chapters of this element described the projected needs of the city and the plans for meeting these needs. This chapter will include the goals, policies and measures to be used in implementing the plan.

Goal 1

TO PROVIDE A SYSTEM OF STREETS AND ROADS THROUGHOUT THE CITY WHICH REFLECT LAND USE NEEDS

Policy 1

Development will be permitted only when facilities for circulation exist, or will exist as part of the development, to adequately handle increased traffic.

Implementation Measures

1. Future road and street rights-of-way shall be protected from development through the adoption and implementation of official plan lines where necessary. (Official plan lines are used when it is undesirable or impractical to widen a road by requiring equal dedication on both sides of the existing center line.
2. Dedication and improvement of right-of-way to conform to the adopted plan line or ultimate right-of-way line shall be required as a condition of development. Generally, this is accomplished through zoning ordinance and subdivision ordinance or building code requirements.
3. Traffic control devices (e.g. traffic signals and stop signs) shall be utilized to control the flow of traffic and minimize delays. Stop signs (including four-way stop signs) shall be used until traffic signals are absolutely necessary.
4. Developers will pay the cost of new roads and streets necessary to serve the development and pay costs to mitigate impacts to the existing roads and streets caused by the development. Developers may be required to provide a traffic study of impacts and possible mitigation measures for projects with the potential of causing significant impacts.

Policy 2

Arterials shall have a Level of Service of "C" or better at buildout of the General Plan boundary.

Implementation Measures

1. Development and street construction shall be monitored so that, at such time as the General Plan boundary is

reached and roads are fully developed, the Level of Service on all arterials is at least level "C".

2. Developers will pay the cost of new roads and streets necessary to serve the development and pay costs to mitigate impacts to the existing roads and streets caused by the development. Developers may be required to provide a traffic study of impacts and possible mitigation measures for projects with the potential of causing significant impacts.

Policy 3

Circulation systems shall be designed to promote safety and minimize traffic congestion.

Implementation Measures

1. Traffic control devices (e.g. traffic signals and stop signs) shall be utilized to control the flow of traffic and minimize delays. Stop signs (including four-way stop signs) shall be used until traffic signals are absolutely necessary. When traffic lights are used, the city shall consider converting the lights to flashing red during non-peak hours.
2. Future residential lots shall not have direct access to arterials unless the area is already predominantly developed with lots having access. This determination shall be made by the planning commission or city council whichever is the final decision making body.
3. Lots which front along an arterial without direct access shall have such access restricted by a solid masonry wall of a height to be determined as a condition of approval of tentative subdivision maps. This wall shall be set back if necessary so that a 10-foot wide sidewalk can be constructed adjacent to the arterial.

As an alternative to the fencing requirement, the use of open-ended cul-de-sacs may be permitted at the discretion of the planning commission and city council.

4. No new local streets shall be permitted to intersect arterials unless it is determined that the circumstances of the particular case are unique and require an exception to this policy. Financial hardship shall not be considered a unique circumstance.
5. Future requests for parcel splits shall be consistent with Policy 3 of this Circulation Element.
6. Future commercial and industrial development along arterials shall be limited to no more than one driveway (access) every 200 feet. If parcels existed as of June

1, 1987 of less than 200 feet in width, commercial or industrial development shall require cooperative agreements between adjoining property owners to allow common access points so that no more than every other property has direct access to the arterial.

7. A second overpass will be provided across the railroad tracks to connect Kentucky Avenue and Talbot Avenue.
8. Except in very small subdivisions where such a requirement is impossible, a majority of streets in a subdivision shall be curved to provide a varied view of the houses. No straight street shall be longer than 500 feet.

Policy 4

A circulation system shall be developed that includes streets as necessary to provide access to all parts of the city based on the anticipated land use.

Implementation Measures

1. The city will require that newly created parcels will have frontage on a city maintained street.
2. All streets shall be at least 60 feet in width with collectors located as necessary to provide access to more than 50 dwelling units.
3. Developers will pay the cost of new roads and streets necessary to serve the development and pay costs to mitigate impacts to the existing roads and streets caused by the development.
4. A second overpass will be provided across the railroad tracks to connect Kentucky Avenue and Talbot Avenue.
5. The city shall develop standards to clarify construction requirements of all types of roads

Policy 5

Adequate parking facilities shall be provided to prevent congestion of streets and provide easy access to all destinations.

Implementation Measures

1. The city shall monitor the needs of commuters and, should parking become a problem, will consider the provision of a park-and-ride lot.
2. All parking areas shall include shade trees in a ratio of at least one tree for every five parking spaces. These trees shall be dispersed throughout the parking area with at least 20 percent of them being interior trees.

Goal 2

TO SUPPORT A BROAD RANGE OF TRANSPORTATION MODES

Policy 6

Bikeways and pedestrian paths shall be routed to provide reasonable access from residential areas to major bicycle and pedestrian traffic generators such as schools, recreation facilities, centers of employment, and shopping areas.

Implementation Measures

1. The city shall investigate funding to provide sidewalks throughout the City of Riverbank including money to retrofit existing curbing to serve the handicapped.
2. The city shall require the construction of sidewalks whenever it has the opportunity.
3. Bikeways and pedestrian paths shall be considered when constructing or improving the road and street system in the city.
4. Diagonal parking in residential areas shall eventually be eliminated and the additional space shall be used for Class II bike lanes.

Policy 7

Provide for the public transit needs of city residents.

Implementation Measures

1. The city shall support the county's efforts to provide a dial-a-ride system.
2. The city shall monitor the needs of commuters and, should parking become a problem, will consider the provision of a park-and-ride lot.
3. Development proposals along Highway 108 may be required to provide bus turnout lanes and covered bus stops as a condition of approval.

CIRC.02A

Appendix 1
Population Projections

Area I.D.	Total Acres	Number of Dwellings					
		Min. Dwellings	Max. Dwellings	(1) = 2.963 Min. Dwellings	(1) = 2.963 Max. Dwellings	(2) = 2.5 Min. Dwellings	(2) = 2.5 Max. Dwellings
#1	33.53	140	153	415	453	350	383
#2	475.38	2640	3189	7822	9449	6600	7793
#3	175.12	3143	3809	9313	11277	7858	9523
#4	498.99	1137	1360	3369	4030	2843	3400
	1182.95	7060	8508	20919	25209	17651	21279
	125.08 *						
	1308.03 **						

* Includes 142 acres of CM zoning.

** Outside of city but too small to develop.

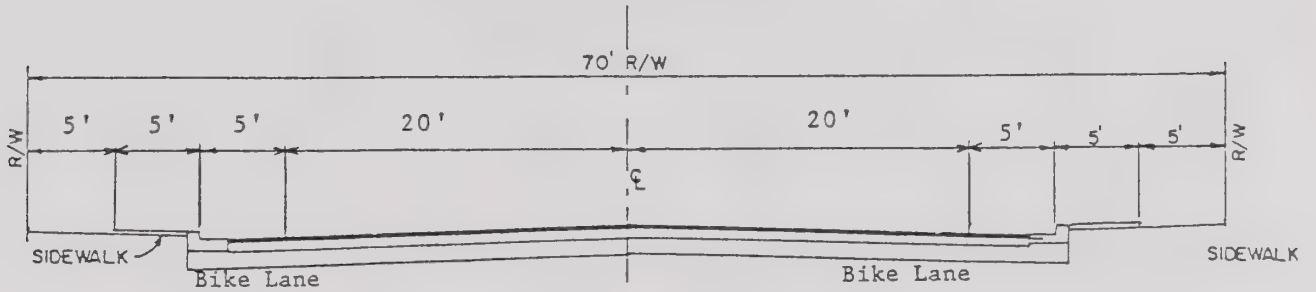
(1) = Household population from 1980 U.S. Census.

(2) = Household population estimated for new dwellings.

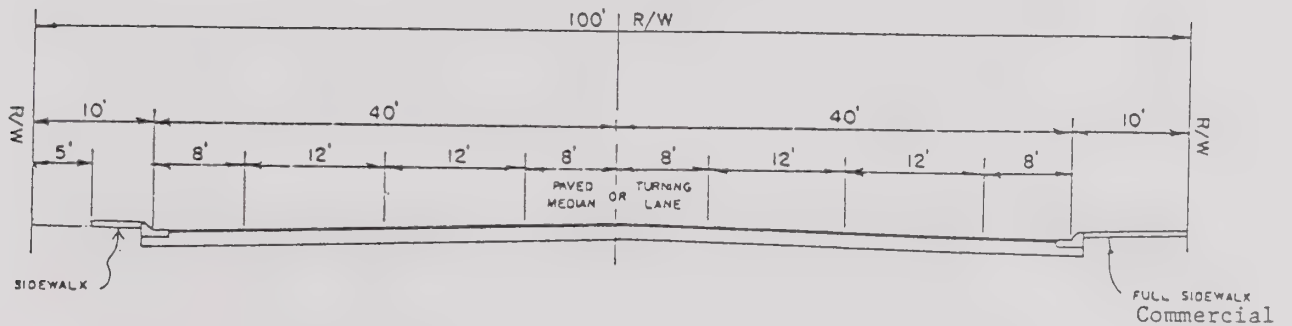
Appendix 2

Improvement Standards for Streets

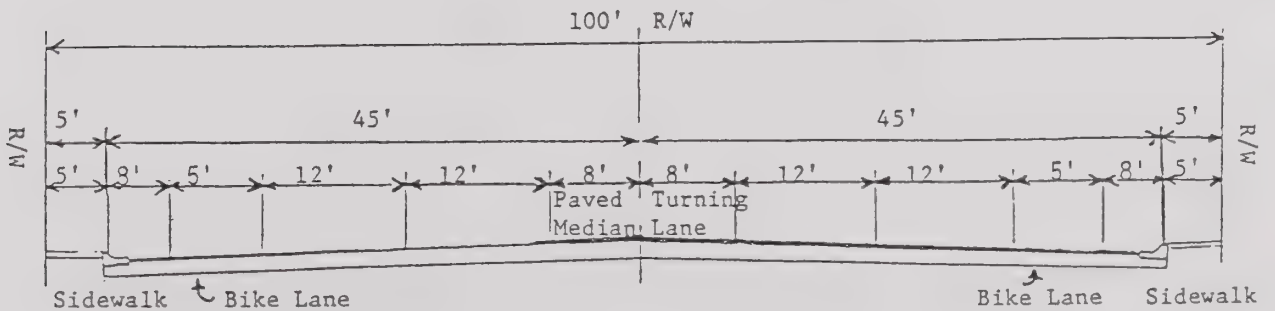
70' COLLECTOR OR ARTERIAL STREET
WITH BIKE LANES



100' ARTERIAL STREET
WITHOUT BIKE LANES



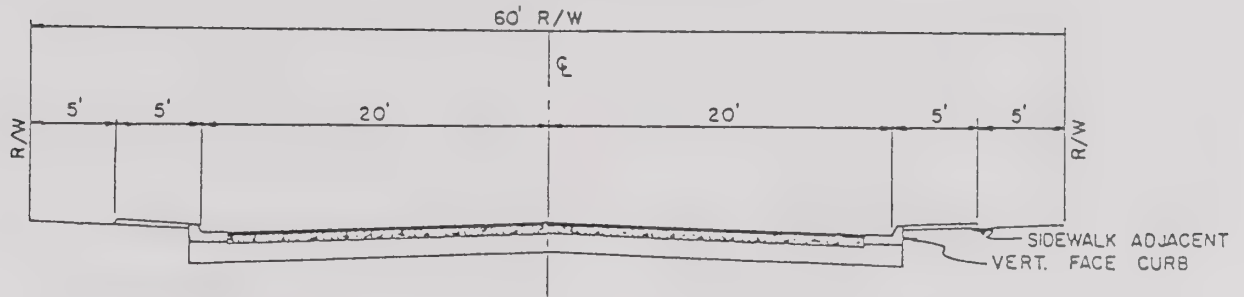
100' ARTERIAL STREET
WITH BIKE LANES



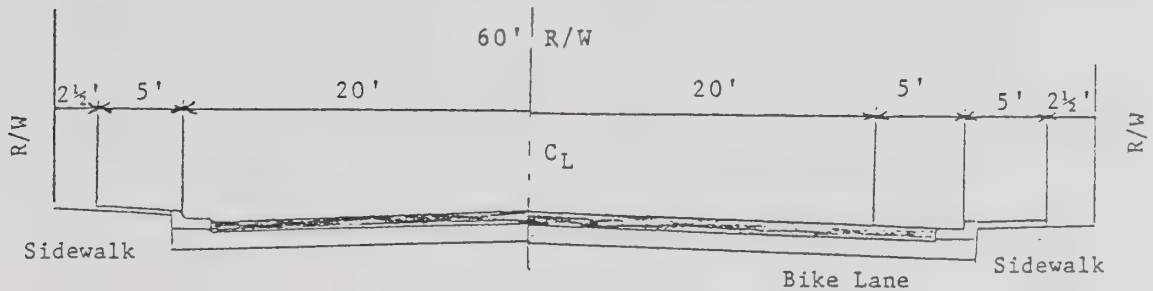
Appendix 2 (Cont.)

Improvement Standards for Streets

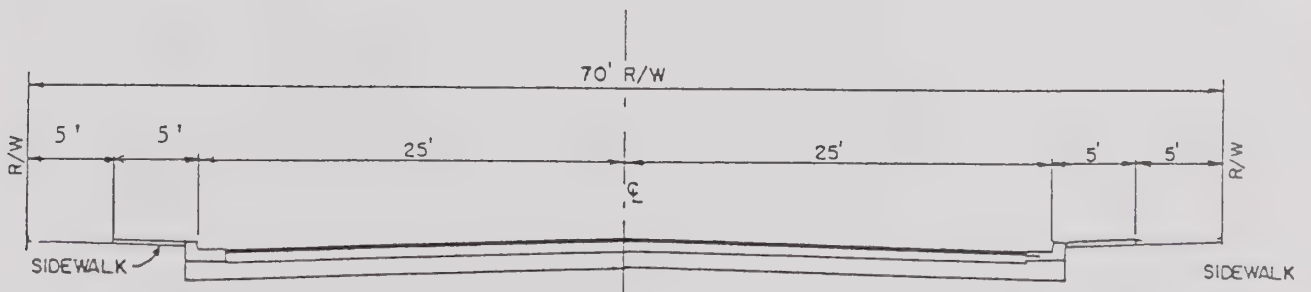
60' COLLECTOR STREET
WITHOUT BIKE LANES



60' COLLECTOR STREET
WITH BIKE LANE



70' COLLECTOR OR ARTERIAL STREET
WITHOUT BIKE LANES



Appendix 3
Energy Saving Actions

Energy Saving Action	Gallons of gasoline saved per dollar spent
Traffic actuated signal optimization	29
Signal interconnectio and coordination	7 to 24
Computer controlled signals	5
Ridesharing program	4 to 7
Areawide express bus service	0.2
Broad area transit expansion	0.1
High occupancy vehicle treatment	0.2 to 0.8

Data oibained from the San Diego Council of Governments

Appendix 4

Level of Service

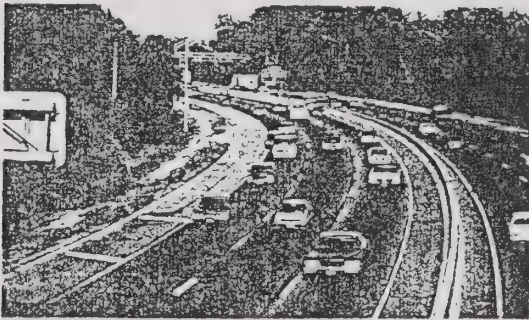
Illustration of freeway flow conditions



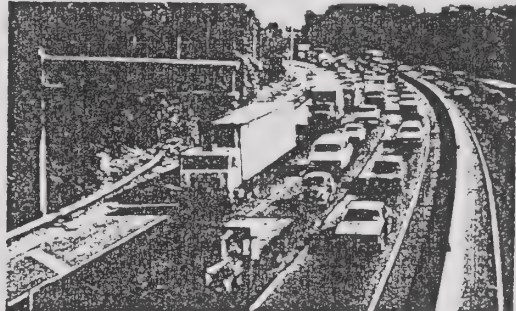
LEVEL A Free traffic flow, low volumes and densities. OS-55 PLUS. No delay.



LEVEL D Approaching unstable flow. OS-40. Minimal delay.



LEVEL B Stable traffic flow, speed beginning to be restricted. OS-50. No delay.



LEVEL E Unstable traffic flow, occasional slowing with high volumes. OS-35. Significant delay.



LEVEL C Stable traffic flow but speeds and maneuverability are more restricted. OS-45. Minimal delay.



LEVEL F Forced traffic flow, stop and go with high densities. OS-less than 25. Significant delay.

"OS" means the typical operating speed along a segment of roadway

OPEN SPACE, CONSERVATION AND RECREATION ELEMENT

OPEN SPACE, CONSERVATION AND RECREATION ELEMENT

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OPEN SPACE, CONSERVATION AND RECREATION ELEMENTS

Chapter I - Introduction

Current state law requires that every city and county have an open space and a conservation element of the General Plan. A recreation element is an optional element but is required if a city wants to require park-in-lieu fees. Riverbank currently has all three elements and does require park-in-lieu fees. This document will combine and replace these elements. The requirements for the three elements are similar and would result in a duplication of data, plans and implementation measures if they were not combined.

Specifically, Government Code Section 65563 requires a city or county to have an adopted open space element for the "comprehensive and long-range preservation and conservation of open-space land within its jurisdiction." Open-space lands are defined in Government Code Section 65560(b) as lands for: (1) the preservation of natural resources (plants, animals, riparian habitat, rivers); (2) the managed production of resources (agricultural land); (3) outdoor recreation (parks, rivers), and (4) public health and safety (flood plains, earthquake fault zones). Furthermore, the open space element should include an inventory of privately and publicly owned open space lands, goals and policies for preserving/managing open space lands, and a program of specific implementation measures.

The conservation element is supposed to provide for the "conservation, development, and utilization of natural resources" and may include flood control; prevention and control of the pollution of rivers, and; prevention, control, and correction of the erosion of soils. Government Code Section 65302(d). This element contains almost identical information as that part of the open space element that deals with the preservation of natural resources.

The recreation element should contain "a comprehensive system of areas and public sites for recreation, including the following, and, when practicable, their locations and proposed development: (1) natural reservations, (2) parks, (3) parkways, (4) beaches, (5) playgrounds, (6) recreational community gardens, (7) other recreation areas." Government Code Section 65303(a).

Because all three of these general plan elements require much of the information and deal with similar, if not identical subjects (e.g. all three require a discussion of parks), they will be discussed together and combined into one element. For organizational purposes this element shall be divided into the four types of open space lands defined in the Government Code. That information required to be in the Conservation Element shall be included in the section titled "Preservation of Natural Resources." The Recreation Element shall be incorporated in the section "Outdoor Recreation".

Chapter II - Goals

The first chapter of this element simply lists the requirements for the Open Space, Conservation and Recreation Elements of the General Plan. This chapter will state the goals to be accomplished with this plan. Chapter III will discuss the plan itself with Chapter IV containing implementation measures.

- GOAL I TO MAINTAIN A LOGICAL BOUNDARY BETWEEN URBAN AND RURAL
USES providing as few opportunities as possible for conflict. Ideally this goal will prevent the premature curtailment of agricultural activities in the General Plan boundary.
- GOAL II TO PROVIDE ADEQUATE ROOM FOR GROWTH WHILE PREVENTING
PREMATURE INTRUSION OF URBAN DEVELOPMENT INTO AGRICULTURAL AREAS. Although the City must provide adequate room to grow, excessive amounts of land should not be annexed prematurely.
- GOAL III TO CONTINUE AGRICULTURAL USE OF LAND OUTSIDE THE CURRENT
CITY LIMITS. This goal, while protecting the County's major resource, agriculture, also leaves the ultimate urban area in a relatively undeveloped state. This eliminates barriers to development consistent with the Land Use Element.
- GOAL IV TO PRESERVE THE STANISLAUS RIVER AND ITS RIPARIAN HABITAT
from urban intrusion.
- GOAL V TO PREVENT ANY EROSION OF SOILS.
- GOAL VI TO PROVIDE PARKS AT A STANDARD OF 2.5 ACRES OF COMMUNITY
PARKS PER 1000 POPULATION AND 2.5 ACRES OF NEIGHBORHOOD
PARKS PER 1000 POPULATION.
- GOAL VII TO PROVIDE ACCESSIBILITY TO ALL RECREATIONAL FACILITIES.

Chapter III

Open Space, Conservation and Recreational Plan

The State Law requires that the Open Space Element discuss open space for the preservation of natural resources, for the managed production of resources, for public health and safety, and for outdoor recreation. Since these four categories of open space also include the information necessary for conservation and recreation elements, the plan has been divided into these broad categories.

A. Preservation of Natural Resources

Open space for the preservation of natural resources includes "areas required for the preservation of plant and animal life, including habitat for fish and wildlife species; areas required for ecology and other scientific study purposes; rivers, streams, bays and estuaries; and coastal beaches, lake-shores, banks of rivers and streams, and watershed lands." (Government Code Section 65560) This overlaps with Section 65302(d) of the Government Code which requires a conservation element for the conservation, development and utilization of natural resources including water, soils, rivers, fisheries, and wildlife.

Only three of the areas listed above may be applicable to the Riverbank Area. The Stanislaus River which borders the City on the north should be preserved both for its own sake and because of the adjoining riparian habitat. The other lands around the City are habitat for a variety of birds and animals and as such, need to be addressed. Third, although most of the ultimate growth area of the City would not be liable to soil erosion, the bluff area would be and should be discussed.

The Stanislaus River borders the City on the north side also forming the County Line. There are no plans for the City to extend its boundaries north of the river and, in some areas, the plan does not extend even as far as the river. The south side of the river adjacent to existing or proposed development does require special consideration.

Riparian habitat (the natural vegetation found along the sides of rivers) is the most critical and smallest of the habitats in this County. County-wide riparian habitat has decreased to about half of what it was twenty years ago. Riparian vegetation generally needs an abundant supply of moisture including occasional flooding. Common trees found along the Stanislaus River include Interior Live Oak, Valley Oak, Western Sycamore, Bay, Black Walnut, California Buckeye, Big-leaf Maple, and White Alder. Shrubs which provide thick undergrowth beneath these trees include Buttonbush, Honeysuckle, California Wild Rose, Coffeeberry, Elderberry, Gooseberry, Poison Oak, Nettle, Mulefat, Horehound, and Mugwort. Woody wild grape and Herbaceous Clematis can occur as a thick green drapery on the trees. Grasses are usually long stemmed and shade tolerant.

The river, itself serves many functions for wildlife. Over 40 species of fish can be found in Stanislaus County rivers. Types of fish which can be found in the Stanislaus River include lamprey, sturgeon, shad, salmon, trout, sucker, carp, goldfish, minnow, catfish, mosquito fish, bass, sunfish, bluegill, perch, sculpin, stikleback, hardhead, hitch, squawfish, roach, and dace.

Acquatic insects can be found in or near the water providing a food source for bass, perch and other fish as well as insectivorous birds. Although the Stanislaus River is a salmon spawning river the salmon spawning grounds end at the Riverbank Bridge with the principal spawning area upstream from Orange Blossom Bridge. Ducks, geese, and swans use the rivers for rest and food during their seasonal migratory journeys.

Source: Stanislaus Area Association of Governments, Environmental Resources Management Element; Wildlife and Vegetation, 1974

Specific information regarding plants, animals and birds is not available for the Riverbank area specifically. Table I lists the rare or endangered plants which, because of their habitat, may exist in the Riverbank area. Table II similarly lists the types of birds that may be found in this area.

TABLE I
RARE AND ENDANGERED PLANTS IN STANISLAUS COUNTY

<u>Common Name</u>	<u>GENUS</u>	<u>SPECIES VARIETY</u>	<u>Status, Habitat, Comments</u>
Evening Primrose	Clarkia	prostrate	<u>endangered</u> , valley grass-lands
Walnut	Juglans	Hindii	<u>endangered</u> , riparian, value as disease resistant rootstock
Wild Marjoram	Monardella	leucocephala	<u>endangered</u> , valley grass-lands, sandy places
Davy	Neostapfia	colusana	<u>endangered</u> , valley grass-lands, about vernal pools
Addea's Tongue Fern	Ophioglossum	californicum	<u>rare</u> , valley grasslands, about vernal pools
Orcutt Grass	Orcuttia	californica-californica	<u>endangered</u> , valley grass-lands, drying mud flats
Vasey	Orcuttia	californica-inaequalis	<u>endangered</u> , valley grass-lands drying mud flats
Vasey Grass	Orcuttia	Greenei	<u>endangered</u> , valley grass-lands, moist open places
Tuft Grass	Orcuttia	pilosa	<u>endangered</u> , valley grass-lands, about vernal pools

Source: California Native Plant Society; Munz, Philip A., A California Flora, University of California Press, 1963.

TABLE II
BIRD SPECIES AND THEIR HABITAT WITHIN STANISLAUS COUNTY.

<u>Family Species</u>	<u>Habitat Type (1)</u>	<u>Abundance</u>	<u>Time of Occurance</u>
Ardeidae			
Great Blue Heron	D,R,V	common	permanent
Green Heron	D,R	fairly common	permanent
Common Egret	D,R	uncommon	permanent
Snowy Egret	D,R	uncommon	permanent
American Bittein	D,R,V	fairly common	permanent
Anatidae			
Mallard	D,R,V	fairly common	permanent
Green-winged Teal	D,R	fairly common	winter
Trochilidae			
Black-chinned Hummingbird	V	uncommon	summer
Anna's Hummingbird	V	common	summer
	V	common	summer
Rufous Hummingbird	V	uncommon	migrant
Allen's Hummingbird	V	fairly common	migrant
	V	rare	summer
Alcedinidae			
Belted Kingfisher	R,D	fairly common	permanent
Picidae			
Red-shafted Flicker	G	common	permanent
Lewis Woodpecker	V, FE	fairly common	winter
Yellow-bellied Sapsucker	V,FW,FE	uncommon	winter
Downy Woodpecker	V,FW,FE	common	permanent
Nuttall's Woodpecker	V,FW,FE	common	permanent

(1) G=general; V=valley-mostly agricultural setting; GP=grassland; U=urban
FW=Diablo Mts.-general; FE=Sierra foothills-general; WO=oak woodlands-Diablo
mnts; D=lower San Joaquin River and other marshes; R=riparian-river bottoms,
lakes and reservours in valley.

<u>Family Species</u>	<u>Habitat Type (1)</u>	<u>Abundance</u>	<u>Time of Occurance</u>
Tyrannidae			
Western Kingbird	V,FW,FE	common	summer
Ash-throated Fly-catcher	V,FW,FE	fairly common	summer
Black Phoebe	R	common	permanent
Hirundinidae			
Tree Swallow	G	common	summer
Rough-winged Swallow	G	fairly common	summer
Barn Swallow	G,V	very common	summer
Cliff Swallow	G,V	very common	summer
Corvidae			
Scrub Jay	G	very common	permanent
Yellow-billed Magpie	U,V,FW	common	permanent
Common Crow	V,GP,U	common	permanent
Paridae			
Plain Titmouse	G	common	permanent
Common Bushtit	V,R,D	common	permanent
Sittidae			
White-breasted Nuthatch	V	common	permanent
Troglodytidae			
House Wren	V,D,R	fairly common	summer
Bewick's Wren	V,D,R	common	permanent
Long-billed Marsh Wren	D,R,V	common	permanent
Mimidae			
California Thrasher	V	fairly common	permanent
Turdidae			
Robin	G	common	permanent
Western Bluebird	G	common	permanent
Silviidae			
Ruby-crowned Kinglet	V	common	winter
Cathartidae			
Turkey Vulture	G	common	permanent

<u>Family Species</u>	<u>Habitat Type (1)</u>	<u>Abundance</u>	<u>Time of Occurance</u>
Accipitridae			
White-tailed Kite	D,V,R	fairly common	permanent
Sharp-shinned Hawk	G	fairly common	permanent
Cooper's Hawk	G	fairly common	permanent
Red-tailed Hawk	G	common	permanent
Red-shouldered Hawk	G	uncommon	permanent
Swainson's Hawk	G	uncommon	summer
Rough-legged Hawk	G	rare	winter
Ferruginous Hawk	G	accidental	winter
Bald Eagle	R	rare	winter
Marsh Hawk	V	common	permanent
Falconidae			
Prairie Falcon	G	uncommon	permanent
Sparrow Hawk	G	common	permanent
Phasianidae			
California Quail	V,FE,FW	common	permanent
Ring-necked Pheasant	V,FE,FW	common	permanent
Gruidae			
Sandhill Crane	D,V	common	winter
Rallidae			
Common Gallmule	D,R	fairly common	winter
	D,R	uncommon	summer
Coot	D,R	common	summer
	D,R	very common	winter
Charadriidae			
Killdeer	V,D,R,FE	common	summer
	V,D,R,FE	very common	winter
Black-billed Plover	V,D,R	fairly common	migrant
Scolopacidae			
Common Snipe	V	common	migrant
	V	fairly common	winter
Long-billed Curlew	V	fairly common	winter
Greater Yellowlegs	V,R	common	migrant
	V,R	fairly common	winter

<u>Family Species</u>	<u>Habitat Type (1)</u>	<u>Abundance</u>	<u>Time of Occurance</u>
Recurvirostridae			
American Avocet	V,R	uncommon	summer
Black-necked Stilt	V,R	uncommon	summer
Laridae			
Herring Gull	V,D,R	fairly common	winter
California Gull	V,D,R	common	winter
Columbidae			
Mourning Dove	G	common	permanent
Rock Dove	G,U	common	permanent
Cuculidae			
Roadrunner	V,FE	rare	permanent
Strigidae			
Great Horned Owl	G	fairly common	permanent
Burrowing Owl	V	fairly common	permanent
Motacillidae			
Water Pipit	V	common	winter
Bombycillidae			
Cedar Waxwing	V,U	common	winter
	V,U	very common	migrant
Laniidae			
Loggerhead Shrike	V	common	permanent
Sturnidae			
Starling	G	fairly common	permanent
Vireonidae			
Warbling Vireo	V	fairly common	migrant
Parulidae			
Orange-crowned Warbler	V	fairly common	winter
Nashville Warbler	V	fairly common	migrant
Myrtle Warbler	V		
Audubon's Warbler	V	very common	winter
Wilson's Warbler	V	common	migrant
Ploceidae			
House Sparrow	G	common	permanent

<u>Family Species</u>	<u>Habitat Type (1)</u>	<u>Abundance</u>	<u>Time of Occurance</u>
Icteridae			
Western Meadowlark	V,FW,FE	common	permanent
Yellow-headed Blackbird	D,R	fairly common	permanent
Redwinged Blackbird	D,R	very common	permanent
Tricolored Blackbird	D,R	uncommon	permanent
Bullock's Oriole	V,U	common	summer
Brewer's Blackbird	G	very common	permanent
Brown-headed Cowbird	G	fairly common	permanent
Fringillidae			
House Finch	G	very common	permanent
American Goldfinch	V,U	common	permanent
Lesser Goldfinch	V,U	common	permanent
Lawrence's Goldfinch	V,U	uncommon	permanent
Rufous-sided Towhee	V,U	very common	permanent
Brown Towhee	V	fairly common	permanent
Savannah Sparrow	V, GP	common	winter
Grasshopper Sparrow	V, GP	uncommon	summer
Oregon Junco	G	common	winter
Chipping Sparrow	V,FE	fairly common	migrant
	V,FE	rare	winter
White-crowned Sparrow	G	very common	winter
Golden-crowned Sparrow	V,FW	common	winter
Song Sparrow	G	very common	permanent

Source: Stanislaus Area Association of Governments, Environmental Resources Management Element; Wildlife and Vegetation, 1974

According to SAAG's Environmental Resources Management Element; Wildlife and Vegetation pages 56 to 59, there are two endangered and two rare animals known to be in Stanislaus County. The Souther Bald Eagle, found near LaGrange, and the Blunt-Nosed Leopard Lizard are endangered. The latter is found in sparsely vegetated plains, low foothills, grasslands and large washes. Increased agricultural use of these habitats has severely reduced its population.

The San Joaquin Kit Fox and the Giant Garter Snake are considered rare. (According to the State Department of Fish and Game these are listed as threatened with the former also being federally listed as endangered.) The fox is found in open hills and feeds on rodents. Because the rodents are being destroyed, the Kit Fox's food supply is disappearing, causing a corresponding reduction in the population. The Giant Garter Snake needs to be near permanent fresh water. The prevalent use of chemicals in these areas has eliminated some of the habitat of the snake. According to the State Department of Fish and Game, the Long-horned elderberry beetle is federally listed as endangered and may occur along the Stanislaus River riparian corridor.

As the City grows, more and more undeveloped land will be utilized for urban development. Some of the potential habitat for the variety of plants, birds, and animals listed above will be eliminated. It should be noted, however, that the actual land being used as a habitat within the General Plan boundary is probably minimal. The land within the General Plan boundary has been split into pieces that are generally less than 10 acres in size. More than 95% of the 400 or so parcels in the original General Plan boundary are less than 10 acres in size. Almost 87% are less than 5 acres. These small parcel sizes mean that there is more of an intrusion of people into the animal's habitat than is usually the case. The movement of people within the habitat area and the noise associated with such movement can have an adverse effect on any birds or animals which may be present. While urbanization will certainly intensify these possible impacts, the harm may already have been done. The area recently added to the General Plan boundary (west to Coffee and south to Claribel) consists of many small parcels but also has large parcels of 50 acres or more.

Erosion along the bluff area of the Stanislaus River could become a problem. The ultimate City Limit line generally follows the bluff line overlooking the river. Growth is not expected to extend beyond this line. It is possible that development will occur along the top of the bluff similar to that which exists in some areas already. Proper review of development applications to ensure consistency with the

policies enumerated below would prevent any problems. With the exception of the bluff area and some minor elevational differences to the west of the City, there are no potential erosion problems.

The following policies are intended to aid in the preservation of natural resources. The implementation measures are designed to further these policies.

Policy A-1 The Stanislaus River and its adjacent riparian habitat will be left untouched despite future development of the City. (Goal 4)

Policy A-2 The City of Riverbank will only annex land as needed to provide an adequate but not excessive supply of land for development. (Goal 1)

Policy A-3 Annexation shall be designed to minimize the conflict between urban development and the open, agricultural land. (Goal 1)

Policy A-4 The City shall oppose further breakdown of agricultural land within its General Plan boundary. (Goal 1)

Policy A-5 Development projects which will result in soil erosion shall not be approved. (Goal 5)

Policy A-6 A minimum 1/8 mile buffer zone shall be delineated along the left bank of the Stanislaus River west of North Park Ridge Court. This buffer area will provide foraging habitat for wildlife living in the riparian corridor and prevent development (including recreational activities) which might interfere with this activity.

B. Managed Production of Resources

Open space used for the managed production of resources includes "forest lands, rangeland, agricultural lands and areas of economic importance for the production of food or fiber; areas required for recharge of groundwater basins; bays, estuaries, marches, rivers and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits." (Government Code Section 65560)

The only area described above which applies to Riverbank would be agricultural lands. The City of Riverbank is surrounded by agricultural lands. As mentioned previously, most of the parcels are less than 5 acres in size and might be considered ranchettes. Nearly all of the fringe area is in pasture with some scattered orchards and row crops on large parcels.

Most of this pasture land is not suited for other types of agriculture. The soil north of Patterson Road and west of Oakdale Road is of the Hanford-Tujunga Association and is the result of the alluvial fan of the Stanislaus River. It is a deep, well-drained soil and is among some of the most productive agricultural land in the County. The Hanford-Tujunga Association is usually composed of Class One and Two soil. The remainder of the soil surrounding the City is largely San Joaquin-Madera Association. This is usually a shallow, well-drained soil with a hardpan at 18-30 inches. Normally planted in pasture, this is a Class Four soil.

Most of the area in the area south west of the original General Plan boundary is in large agricultural parcels and most of the land is subject to Williamson Act Contract. Approximately 500 acres of the area proposed for expansion (approximately 1/4 of the area) is Class 1 or 2 soil with the remainder being Class 4.

The City currently has several policies which aid in the management of agricultural lands. First, the City only annexes land as it is felt to be needed to provide room to grow. At one point, the City opposed a 173 acre annexation as being premature.

Second, lot sizes have been reduced in the past two years and densities have been increased. This will allow more people to live on less land and will mean that less agricultural land is necessary to provide for urban growth. Third, the City has consistently opposed parcel splits on the fringe of the City which further break down agricultural land into nonproductive units. These policies will be continued and amplified through the following policies and subsequent implementation measures.

Policy B-1 The City of Riverbank will only annex land as needed to provide adequate but not excessive supply of land for development. (Goal 2)

Policy B-2 Annexations shall be designed to minimize the conflict between urban development and agricultural land. (Goals 1 and 2)

Policy B-3 The City shall oppose further breakdown of agricultural land within its General Plan Boundary. (Goals 1 and 2)

Policy B-4 The City shall monitor its actions to make certain it is making the most efficient use of its land. (Goal 2)

Policy B-5 The City shall protest Williamson Act contracts within its General Plan Boundary to permit continued agricultural use of the land until annexation. (Goal 3)

C. Public Health and Safety

Open space for public health and safety includes "areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, flood plains, watersheds, areas required for the protection and enhancement of air quality." (Government Code Section 65560)

The City of Riverbank's General Plan Elements of Safety and Seismic Safety address the issues raised in the above State statute. More specifically no earthquake faults are found underneath the Riverbank General Plan area, nor are there significant opportunities for land slides, volcanic hazards or expansive soils. The Stanislaus River, although it does not have an adopted designated floodway does have an area shown as the 8000 cubic feet per second (cfs) line. This line is the maximum height of the rivers should the Corps of Engineers permit 8000 cfs of water to be released from New Melones Dam. Unless some totally unknowable and unexpected changes occur, the Stanislaus River will not be higher than the 8000 cfs line.

D. Outdoor Recreation

Open space for outdoor recreation includes "areas of outstanding scenic, historic and cultural values; areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, and rivers and streams; and areas which serve as links between major recreation and open-space reservations, including utility easements, banks of rivers, and streams, trails, and scenic highway corridors." (Government Code Section 65550) This section of the element will also meet the requirements for a Recreation Element which shows "a comprehensive system of areas and locations and proposed development: 1) natural reservations, 2) parks, 3) parkways, 4) beaches, 5) playgrounds, 6) recreational community gardens, and 7) other recreational areas." (Government Code Section 75303a)

Many standards exist for determining a community's need for parks. One source, a moderate estimate, is the Recreation and Open Space Standards developed by the National Recreation and Parks Association (NRPA). NRPA's standards for neighborhood and community parks are listed below.

TABLE III
NRPA Standards for Neighborhood and Community Parks

<u>Characteristics</u>	<u>Neighborhood Parks</u>	<u>Community Parks</u>
Area	5 - 20 acres	20 - 100 acres
Service radius	1/4 - 1/2 miles	1/2 - 3 miles
Population	2000 - 10,000	10,000 - 50,000
Ratio ac/pop	2.5 - 1,000	2.5 - 1,000

Source: Robt. D. Buecher (Ed), National Park, Recreation and Open Space Standards, National Recreation and Park Association, 1971

Although these standards are somewhat dated (1971) we still believe them to be valid. Appendix I shows how population distribution has changed from 1975 to 1980. The percentage of park users (young and elderly) has not changed appreciably. NRPA's standards represent an ideal recreational facility in an urban area. These standards are guidelines with which a city can determine its own needs and resources. NRPA also lists the kinds of facilities appropriate for neighborhood and community parks. These facilities include play apparatus areas, sports fields, picnic areas, tennis

courts, swimming pools, and multipurpose courts. Similar standards and guidelines also appear in a State of California publication, Guide for Planning Recreation Parks in California, where parks for various regions in the state are discussed.

The City of Riverbank currently has one community park and several neighborhood parks and play areas. Jacob Meyers Park, a 55 acre community park is located on the north side of the Stanislaus River and, in addition to 2/3 miles of river frontage, has a full range of play, picnic and leisure facilities. The Community Center Park, adjacent to Cardoza School is 3 acres in size and has play, picnic and leisure areas. The other parks/play areas are less than one acre each and are as follows: Hutcheson Park, a one-half acre play area at Fourth and High Streets; California Avenue Park, a one-third acre play area on California Avenue between Terminal Avenue and Eighth Street; Esther Staley Park, a one-sixth acre park at First Street and Santa Fe Street; Pioneer Park, a two-thirds acre park at First Street and High Street with limited play, picnic and leisure facilities. This total of approximately 71.93 acres is equivalent to more than 10 acres of parks per 1000 people. Although the City may provide as many parks as it likes, park-in-lieu fees can only be collected for 5 acres of park per 1000 people under State Law.

Most of these parks do not meet the standards set forth in Table III. The Community Center Park comes closest to meeting the Neighborhood Park criteria. Jacob Meyers is adequate to serve the city until further expansion of its planning boundary. At the projected ultimate population of 20,000 people, Jacob Meyer Park will constitute 2.75 acres of community park for each 1,000 population.

Since the City is only allowed to collect fees for 5 acres of park per 1,000 people, and since the City's sphere of influence population is expected to be about 20,000 people, the City can only require fees to pay for 100 acres of parks. Since there currently is 71.93 acres of parks, only 28.07 more acres can be provided.

The map included in Chapter 4 indicates proposed location of parks. Four of the parks are proposed to be located in conjunction with schools. These parks would be 5 acres each. A fifth park is proposed near Rio Altura School but will be only 3 or 4 acres. One additional park will also be provided at one of the two proposed storm drainage basins shown on the map. The decision for which basin shall also be used as a park will be made as development occurs.

In 1965 the State Legislature enacted the Quimby Act which permits cities and counties to pass ordinances that require either the dedication land land, the payment of in-lieu fees or a combination of both for park and recreation purposes. These requirements are a condition to approval of a final subdivision map. In 1981, the Construction Industry Research Board conducted a survey among California cities and counties to assess the extent that park fees were levied on new development. Jurisdictions calculated fees based on a variety of measures including one or a combination of the following: fair market value of park land; park land development

costs; assessor's appraised value, average cost of undeveloped land, flat fee for each dwelling unit. The average fee of the responding cities and counties was \$640.00 per single family dwelling unit, \$526.00 per multi-family unit and \$369.00 per mobile home.

Following adoption of the Recreation Element in late 1973, a new section was added to the Subdivision Ordinance to begin collecting park and recreation fees. A park standard of 10 acres per 1000 people was adopted and an \$80.00 per unit fee was imposed. When the Subdivision Ordinance was revised in 1978, the section was entirely rewritten to provide 5 acres of park per 1000 people. The rewritten ordinance assumes the following densities and park acreage requirements.

TABLE IV
CITY OF RIVERBANK PARK STANDARDS

Zoning District	Assumed Density	Standard Acres Required/ Dwelling Unit
R-1	4.0 persons/DU	2 acres/100 DU's
R-2	2.5 persons/DU	2 acres/160 DU's
R-3, R-4	2.0 persons/DU	2 acres/200 DU's

The value of park land is estimated (currently at \$20,000/acre) and using the following formula, a per unit fee is derived.

$$2 \text{ acres} \times \$20,000/\text{acre} = \$40,000 \text{ (DU Standard for } = \text{ fee per dwelling unit Zoning District)}$$

For R-1 zoning the fee is now \$400 per unit, R-2 is \$250 per unit and R-3 is \$200 per unit. This fee is based on the need for 5 acres of park per 1000 population and the densities assumed above. The fee would only pay for purchase of land and not any development. Even if park land can be purchased for \$20,000 an acre, no funds are collected for actually building the park. A recent update of Modesto's Open Space and Recreation Element included a cost estimate of development of a 5 acre Neighborhood Park. The chart below shows this cost break down.

TABLE V
PARK DEVELOPMENT COSTS IN THE CITY OF MODESTO

Park Development	Cost of 5 acre Neighborhood Park
Master Plan, engineering	\$ 40,000.00
Landscaping and site preparation	180,000.00
Restroom/utility building	85,000.00
Game Courts/apparatus	55,000.00
Training Pool	60,000.00
Picnic units, lights	50,000.00
Total	\$470,000.00

It has not, in the past, been the City of Riverbank's policy to have training pools in parks. Even without the pool the park development would cost over \$400,000 (\$80,000 per acre). Added to land purchase costs of \$20,000 per acre, the total cost of providing a park is \$100,000 per acre - about five times as much as is currently being collected. In order to at least have some grass in the park, the fee should be adjusted to at least pay for the landscaping and site preparation. Other facilities can be added as money becomes available.

In addition to parks, the City provides recreational opportunities through its swimming pool and community center. This swimming pool is open from June to September. In 1980 approximately 10,500 people used the pool. This increased to over 13,000 in 1981, a 25% increase. Activities are also held from time to time at the community center. Annually the City provides liability insurance coverage for a variety of local basketball, baseball, softball, volleyball, track and weight lifting teams.

Within any area designated "Residential Reserve" the approximate locations of parks, schools, and other public buildings will be designated on a neighborhood by neighborhood basis when each neighborhood is reviewed and exact General Plan designations are assigned.

The City of Riverbank circulation Element includes proposed bike routes and bike lanes. These facilities tie most of the major facilities within the City to one another. These bike routes are very important in making recreation facilities available and accessible to their most likely users. The system described in the circulation element should be implemented.

The following policies will be used to further provide outdoor recreational opportunities.

Policy D-1 The City of Riverbank shall maintain park in lieu fees at a level adequate to provide parks in a ration of acres to population as established by this element. (Goal 6)

Policy D-2 The City of Riverbank shall purchase land in approximate locations as shown on the map labeled Riverbank Park Plan. (Goal 6)

Policy D-3 Parks shall be developed as growth warrants. (Goal 6)

Policy D-4 When school districts purchase school sites, the City shall as soon as practical, purchase an adjoining five acres for park purposes. (Goal 6)

Policy D-5 Bikeways as described in the Circulation Element should be designed to serve recreational facilities. (Goal 7)

Policy D-6 A minimum 1/8 mile buffer zone shall be delineated along the left bank of the Stanislaus River west of North Park Ridge Court. This buffer area will provide foraging habitat for wildlife living in the riparian corridor and prevent development (including recreational activities) which might interfere with this activity.

CHAPTER IV

Specific Implementation Measures

The preceding Chapter sets down plans and policies to be followed by the City of Riverbank with respect to Open Space, Conservation and Recreation. However, implementing these plans and policies requires specific actions. Some of these actions can take place now, others are ongoing responsibilities, some are done periodically, and still others only when the need arises. The specific implementation measures needed for open space, conservation, and recreation purposes are listed below.

1. Each proposal for development along with the Stanislaus River shall be carefully reviewed and properly conditioned to eliminate any possible impact to the Stanislaus River and its riparian habitat (Policy A-1).

2. When reviewing annexations, information regarding existing vacant land already within the City will be considered by the Planning Commission and City Council prior to granting support for the annexation (Policy A-2).

3. Each annexation shall be reviewed to ensure it does not further urban sprawl but rather continues to provide a compact city limits boundary without County islands or peninsulas of City land (Policy A-2; Policy B-2).

4. When a referral of a parcel split is received from the County, the City will oppose the creation of parcels of less than 10 acres in size (Policy A-4; Policy B-3).

5. Each development project shall be reviewed to determine whether or not soil erosion may occur. If erosion is a possibility, the project shall be modified or conditions shall be imposed to eliminate the possibility of erosion. If modification or conditioning is not possible, the project shall be denied (Policy A-5).

6. The City shall periodically review its Zoning Ordinance and the Land Use Element of the General Plan to ensure that the density of development permitted within the City is the most efficient possible while still maintaining the quality of life of its residents (Policy B-4).

7. Park in lieu fees shall be updated as soon as possible to reflect increased land values, development costs, and reduction in the acreage of new parks to be provided (Policy D-1).

8. As the City approaches the park sites shown on the map labeled Riverbank Park Plan, the land will be purchased or required to be dedicated prior to development (Policy D-2).

9. As urban growth occurs near City-owned park land, the parks will be gradually developed as demand increases (Policy D-3).

10. New development shall be reviewed to determine whether any required street construction should include bike paths (Policy D-4).

APPENDIX I
Age of Population
1975 & 1980

AGE	TOTAL				MALE				FEMALE			
	1975		1980		1975		1980		1975		1980	
0-19	1,813	39.74	2,124	37.29	880	40.44	1,031	37.88	933	39.16	1,093	36.77
20-24	386	8.47	537	9.43	186	8.51	255	9.36	200	8.39	282	9.48
25-59	1,723	37.28	2,251	39.53	841	38.56	1,102	40.49	882	37.03	1,149	38.64
60 and over	639	14.02	783	13.76	271	12.47	334	12.27	368	15.41	449	15.10
TOTAL	4,561	100.0	5,695	100.0	2,178	100.0	2,722	100.0	2,383	100.0	2,973	100.0

Source: 1975 Special Census and 1980 Decennial Census

CHAPTER IV

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1. Each proposal for development along the Stanislaus River shall be carefully reviewed and properly conditioned to eliminate any possible impact to the Stanislaus River and its riparian habitat. (Policy A-1)

2. When reviewing annexations, information regarding existing vacant land already within the City will be considered by the Planning Commission and City Council prior to granting support for the annexation. (Policy A-2) (Policy B-1)

3. Each annexation shall be reviewed to ensure it does not further urban sprawl but rather continues to provide a compact city limits boundary without County islands or peninsulas of City land. (Policy A-3) (Policy B-2)

4. When a referral of a parcel split is received from the County, the City will oppose the creation of parcels of less than 10 acres in size. (Policy A-4) (Policy B-3)

5. Each development project shall be reviewed to determine whether or not soil erosion may occur. If erosion is a possibility, the project shall be modified or conditions shall be imposed to eliminate the possibility of erosion. If modification or conditioning is not possible, the project shall be denied. (Policy A-5)

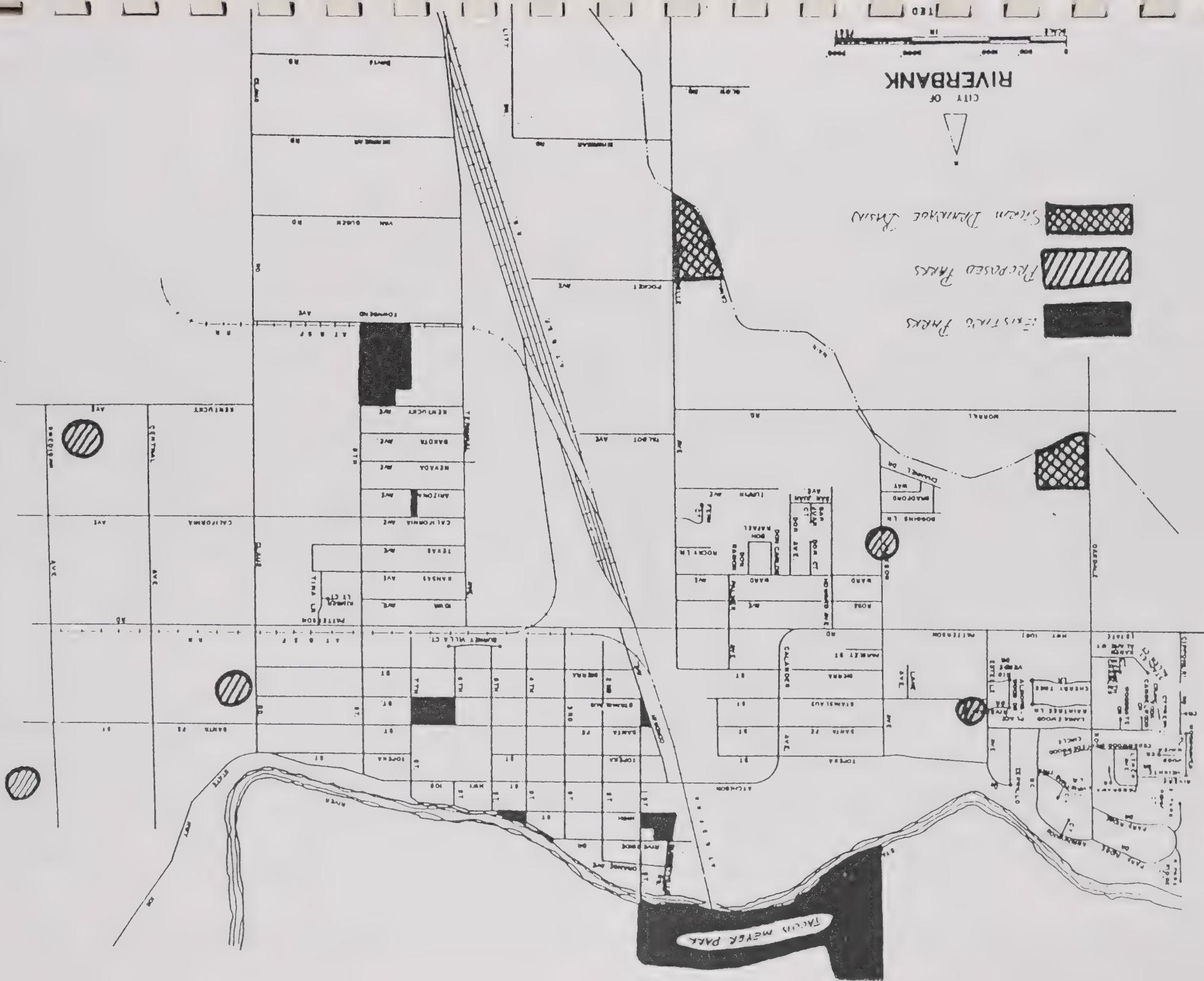
6. The City shall periodically review its Zoning Ordinance and the Land Use Element of the General Plan to ensure that the density of development permitted within the City is the most efficient possible while still maintaining the quality of life of its residents. (Policy B-4)

7. Park-in-lieu fees shall be updated as soon as possible to reflect increased land values, development costs, and reduction in the acreage of new parks to be provided. (Policy D-1)

8. As the City approaches the park sites/storm drainage ponds shown on the map labeled Riverbank Park Plan, the land will be purchased or required to be dedicated prior to development. (Policy D-2)

9. As urban growth occurs near City-owned park land, the parks will be gradually developed as demand increases. (Policy D-3)

10. New development shall be reviewed to determine whether any required street construction should include bike paths. (Policy D-4)



**NOISE ELEMENT OF THE GENERAL PLAN
CITY OF RIVERBANK, CALIFORNIA**

Prepared for

CITY OF RIVERBANK
6707 Third Street
Riverbank, California 95367

Prepared by

BROWN-BUNTIN ASSOCIATES
Visalia, California

Revised
December 16, 1985

BBA

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A. PURPOSE

The purpose of this Noise Element of the City of Riverbank General Plan is to provide a means for protecting local citizens from the harmful effects of excessive exposure to noise. This may be accomplished by mitigating noise conflicts where they presently exist and by minimizing future noise conflicts by the adoption of specific policies intended to achieve land use compatibility within the community. This document has been prepared in accordance with Section 65302(f) of the California Government Code, which requires that Noise Elements of the General Plan be prepared by all cities and counties, and conforms to the "Guidelines for the Preparation and Content of Noise Elements of the General Plan" prepared by the California Office of Noise Control.

B. BACKGROUND

The contents of a Noise Element and the methods used in its preparation have been determined by the requirements of Section 65302(f) of the California Government Code and by "Guidelines for the Preparation and Content of Noise Elements of the General Plan" adopted and published by the California Office of Noise Control (ONC) in 1976. As adopted, the ONC Guidelines require that certain major noise sources and areas containing noise sensitive land uses be identified and quantified by preparing generalized noise exposure contours for current and projected levels of activity within the community. Contours may be prepared in terms of either the Community Noise Equivalent Level (CNEL)* or the Day-Night Average Level (L_{dn}) which are both descriptors of total noise exposure at a given location for an annual average day. It is intended that the noise exposure information developed for the Noise Element be incorporated into the General Plan to serve as a

* For an explanation of the terminology used in this document refer to Appendix A: "Acoustical Terminology."

basis for achieving land use compatibility through the long-range planning and project review processes. It is also intended that noise exposure information be used to provide baseline levels and noise source identification for use in the development and enforcement of a local noise control ordinance.

According to the Noise Element Requirements and ONC Guidelines, the following major noise sources should be considered in the preparation of a Noise Element:

1. Highways and freeways
2. Primary arterials and major local streets
3. Railroad operations
4. Aircraft and airport operations
5. Local industrial facilities
6. Other stationary sources

Noise sensitive areas to be considered in the Noise Element should include areas containing the following noise sensitive land uses:

1. Schools
2. Hospitals
3. Rest homes
4. Long-term medical or mental care facilities
5. Other uses deemed noise sensitive by the local jurisdiction

C. NOISE AND ITS EFFECTS ON PEOPLE

Noise is often defined simply as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon. Researchers for many years have grappled with the problem of translating objective measurements of sound into directly correlatable measures of public reaction to noise. The descriptors of community noise in current use are the results of these efforts, and represent simplified, practical measurement tools to gauge community response. Before elaborating on these descriptors, it is useful to first discuss some fundamental concepts of sound.

Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, now called Hertz (Hz) by international agreement.

The speed of sound in air is approximately 770 miles per hour, or 1,130 feet per second. Knowing the speed and frequency of a sound, one may calculate its wavelength, the physical distance in air from one compression of the atmosphere to the next. An understanding of wavelength is useful in evaluating the effectiveness of physical noise control devices such as mufflers or barriers, which depend upon either absorbing or blocking sound waves to reduce sound levels.

To measure sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals) as a point of reference, defined as 0 dB. Other sound pressures are compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The logarithmic scheme also reflects the exponential

manner in which the ear reacts to sound. The formula for calculating sound pressure level (in decibels) is:

$$\text{SPL} = 20 \log p/p_0, \text{ dB, or}$$

$$= 10 \log (p/p_0)^2, \text{ dB;}$$

where: SPL = sound pressure level, dB

p = measured pressure

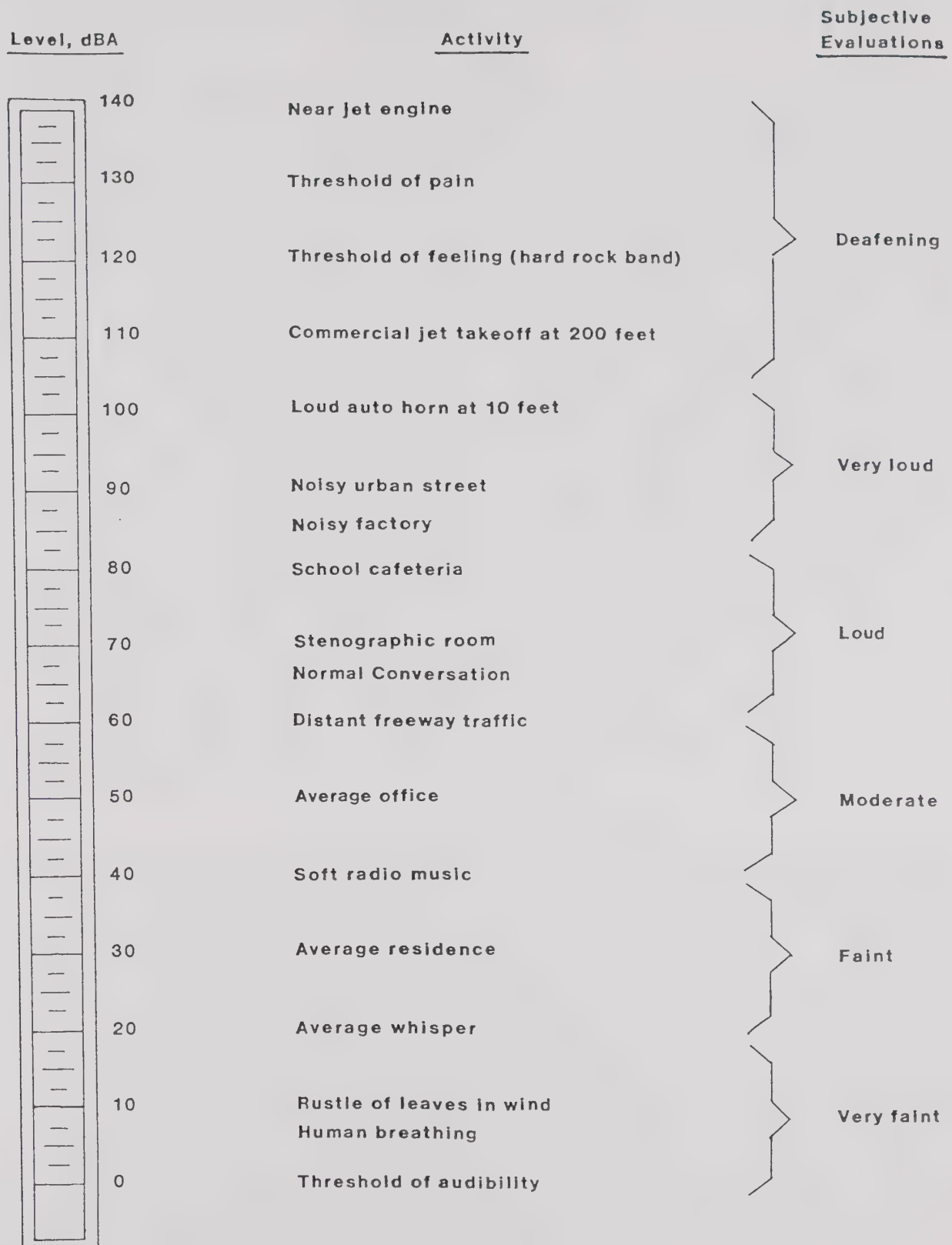
p₀ = reference pressure (20 micropascals)

Use of the decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) are uniform throughout the scale, corresponding closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, in the range of usual environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighting the frequency response of a sound level measurement device (called a sound level meter) by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. In terms of community response, it is generally valid that a change in noise level of at least 5 dBA is required before any noticeable change in community response would be expected. A 10 dBA change in noise level is perceived as being subjectively a doubling in loudness, which would likely result in an adverse public reaction. Typical A-weighted sound levels generated by noise sources commonly found in the community are illustrated in Figure 1.

It is common to describe community noise in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent energy sound level (L_{eq}), which is the sound level corresponding to a steady-state A-weighted sound level containing

Figure 1
Examples of Noise Levels



Source: M. David Egan, FAA data

BBA

the same total energy as a time-varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptors such as L_{dn} and CNEL, and shows very good correlation with community response to noise.

The two most common noise descriptors in use today are the L_{dn} and CNEL scales. L_{dn} (day-night average level) is based upon the average hourly L_{eq} over a 24-hour day, with a 10 decibel penalty applied to nighttime (10 p.m. to 7 a.m.) L_{eqs} . The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were subjectively twice as loud as daytime exposures. CNEL (Community Noise Equivalent Level) is also based upon the average hourly L_{eq} over a 24-hour day, except that an additional penalty of approximately 4.5 decibels is applied to evening (7 p.m. to 10 p.m.) hourly L_{eqs} . The CNEL scale was developed for the California Airport Noise Regulations, and is applied specifically to airport noise assessment. The L_{dn} scale is a simplification of the CNEL concept. For a given situation, the two scales will generally agree within plus or minus 1 dB. Like the L_{eq} , these descriptors are averages and tend to disguise variations in the noise environment. Furthermore, because they presume increased evening or nighttime sensitivity, they are best applied as criteria for land uses where nighttime noise exposures are critical to the acceptability of the noise environment, such as residential developments.

Noise in the community has often been cited as being a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from the interference with human activities such as sleep, speech, recreation, and tasks demanding concentration or coordination. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases and the acceptability of the environment for people decreases. This decrease in acceptability and the threat to public well-being is the basis for land use planning policies directed towards the prevention of exposure to excessive community noise levels.

D. EXISTING AND FUTURE NOISE ENVIRONMENT

1. Major Noise Sources

Based on discussions with City officials and the results of field studies by BBA, it was determined that there are four major sources of community noise within the City of Riverbank. These sources are State Route 108, major local streets, railroad operations and local industrial activities. There are no airports located within close proximity to the community. Specific noise sources selected for study are listed below:

- a. Highways and Major local streets;
 - . State Route 108
 - . Patterson Road
 - . Oakdale Road
 - . Claus Road
 - . Roselle Avenue
 - . First Street
 - . Third Street
 - . Terminal Avenue
 - . Eighth Street
- b. Railroad operations;
 - . Atchison, Topeka and Santa Fe Railway
- c. Industrial facilities;
 - . Yolo Transport Company, Inc.
 - . Monschein Cabinet Company
 - . Carnation Company - Can Division
 - . DuraBilt Truss Company
 - . Contadina Foods, Inc.
 - . Riverbank Army Ammunition Plant
 - . Thunderbolt Wood Treating Company, Inc.
 - . Riverbank Pallet Company
 - . Oakwood Products

A combination of noise monitoring and analytical noise modeling techniques was used to develop generalized L_{dn} noise contours around the major noise sources identified above for existing (1985) and future (2000) conditions.

Analytical noise modeling techniques generally make use of source-specific data including average levels of activity, hours of operation, seasonal fluctuations, and average levels of noise from source operations. Analytical methods have been developed for a number of environmental noise sources including roadways, railroad line operations, railroad yard operations, industrial plants and aircraft/airport operations. Such methods will produce reliable results as long as data inputs and assumptions are valid for the sources being studied. The analytical methods used in this report closely follow recommendations made by ONC, and were supplemented where appropriate by field-measured noise level data to account for local conditions. It should be noted that the noise exposure contours presented in this report are based upon annual average conditions, and are not intended to be site-specific where local topography, vegetation or intervening structures may significantly affect noise exposure at a particular location.

a. Highways and Major Local Streets

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop L_{dn} contours for State Route 108 and major local streets within the City of Riverbank. The FHWA Model is the analytical method presently favored by most state and local agencies, including Caltrans, for traffic noise prediction. The FHWA Model is based upon reference energy emission levels for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within plus or minus 1.5 dB. To predict L_{dn} values it is necessary to determine the hourly distribution of traffic for a typical 24-hour day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Traffic volumes and truck percentages for existing (1985) and future (2000) conditions on State Route 108 in the Riverbank area were obtained from Caltrans as summarized in Appendix B. Future projections of annual daily traffic volumes on State Route 108 are based upon a yearly growth factor of 3.6% which is the five-year average for 1979-1984 as published by Caltrans. Traffic volumes for existing and future conditions on major local streets were obtained from the City of Riverbank. Existing traffic volumes are based upon traffic counts performed by the City between the years of 1981 and 1985. Future traffic volumes are based on the same annual growth factor applied to State Route 108. These data are summarized in Appendix B. The day/night distributions of traffic reported in Appendix B for State Route 108 and major local streets are based upon BBA file data for similar roadways in other communities. Truck percentages for major local streets are estimates based upon BBA file data for other communities and information obtained from the City of Riverbank.

Using data from Appendix B and the FHWA methodology, traffic noise levels as defined by L_{dn} were calculated for existing (1985) and projected future (2000) traffic volumes on State Route 108 and major local streets. Distances from the center of the roadway to L_{dn} contour values of 70, 65 and 60 dB are summarized in Table I. The approximate locations of the 60 dB L_{dn} contours for these roadways have been plotted in Figure 2 for existing traffic volumes and in Figure 3 for future traffic volumes. It should be noted that since calculations do not take into consideration shielding which may be caused by local buildings or topography in some areas, the distances reported in Table I and indicated in Figures 2 and 3 should be considered as worst-case estimates of traffic noise exposure in the community.

Figure 3
Generalized Ldn Contours - Future(2000) Conditions
Major Noise Sources - Riverbank, California

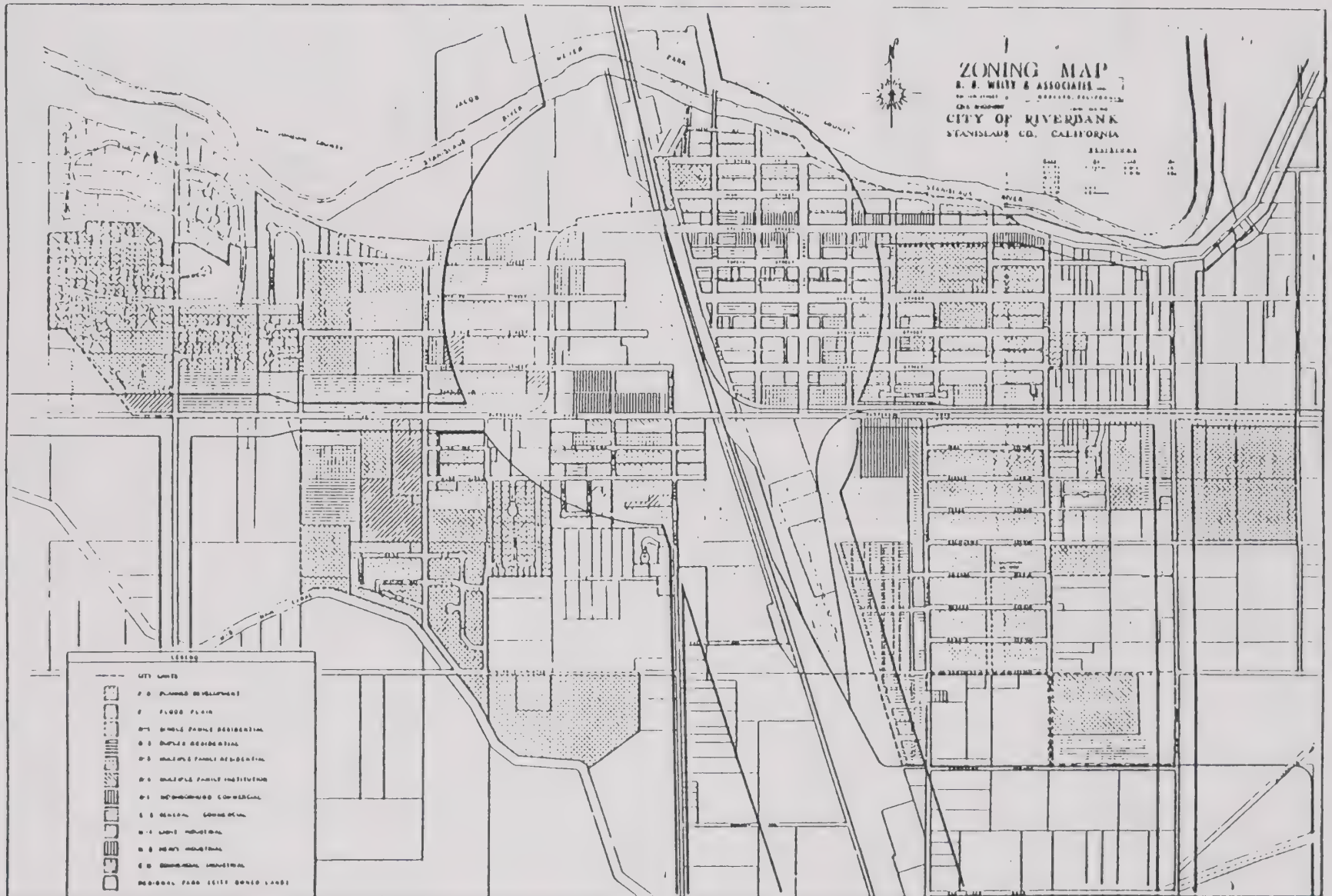


TABLE I

DISTANCE (FEET) FROM CENTER OF
ROADWAY TO L_{dn} CONTOURS
STATE ROUTE 108 AND MAJOR LOCAL STREETS - RIVERBANK, CALIFORNIA

Roadway	<u>1985</u>			<u>2000</u>		
	70 dB	65 dB	60 dB	70 dB	65 dB	60 dB
State Route 108						
(East of Estelle Avenue)	22	47	100	31	55	143
(West of Estelle Avenue)	32	69	149	46	98	212
Patterson Road						
(SR108 to Terminal Ave)	19	41	89	27	59	126
(Terminal Ave to Snedigar Ave)	13	28	61	19	41	88
Oakdale Road						
(South of Patterson Road)	24	52	112	34	74	159
Claus Road						
(North of Patterson Road)	39	84	182	56	120	258
(South of Patterson Road)	31	68	146	45	97	208
Roselle Avenue						
(South of Patterson Road)	10	21	44	14	30	64
First Street						
(North of SR108)	6	13	28	8	18	39
(South of SR108)	15	31	68	21	45	96
Third Street						
(SR108 to Santa Fe St)	5	11	23	7	16	34
(Santa Fe St to Patterson Road)	10	21	46	14	30	65
Terminal Avenue						
(South of Patterson Road)	7	15	32	10	21	46
Eighth Street						
(SR108 to Patterson Road)	5	10	23	7	15	32
(South of Patterson Road)	4	10	21	6	14	29

Source: Brown-Buntin Associates

TABLE IA

Ldn CONTOURS FROM CENTER OF ROADWAY

MAJOR LOCAL STREETS - RIVERBANK, CALIFORNIA

<u>Roadway Description</u>	<u>Ldn @ 100' (dB)</u>		<u>Distance (Feet)</u>	
	<u>1986</u>	<u>2000</u>	<u>to 60 dB Ldn</u>	<u>1986 2000</u>
Coffee Road (Patterson to Claribel)	60.4	63.4	107	169
Claribel Road (Coffee to Oakdale)	63.1	66.1	161	253
(Oakdale to Claus)	61.1	64.1	119	187

b. Railroad Operations

Railroad operations within the City of Riverbank are composed of freight and Amtrak passenger service on the Atchison, Topeka and Santa Fe Railway Company (A.T.&S.F.) mainline which runs through the central part of town in a north-south direction. Operational data for existing (1985) and projected future (2000) operations on the A.T.&S.F. Railway were obtained from the railroad as summarized in Table II. There is also a branchline of the A.T.&S.F. Railway which runs east of the mainline to Oakdale. There is generally one roundtrip per day on this line during the daylight hours.

TABLE II

RAILROAD OPERATIONAL DATA
ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY
RIVERBANK, CALIFORNIA

	<u>1985</u>	<u>2000</u>
Average # Trains/Day:		
Freight	22	33
Passenger (Amtrak)	4	6
Day/Night Distribution	70%/30%	70%/30%
Speed:		
Freight	70 MPH	70 MPH
Passenger (Amtrak)	79 MPH	79 MPH
Type of Rail	Jointed	Welded

Source: Chief Dispatcher's Office, A.T.&S.F. Railway Co.
Fresno, California

Noise measurements were conducted in Riverbank on August 27 and 28, 1985 to document noise levels generated by individual train operations in the community. Measurements were conducted near the

Patterson Road grade crossing on the A.T.&S.F. mainline and along the branchline near the Third Street grade crossing. The maximum noise level generated by the warning horn used by Amtrak was 106 dBA at 100 feet for a northbound train. The maximum noise level generated by a southbound freight with 4 locomotives and approximately 60 cars at the same location was 91 dBA. The maximum noise level generated by this event was caused by the locomotives. A local freight consisting of 1 locomotive and 6 cars on the branchline produced a maximum noise level of 92 dBA for the horn during a westbound movement at 100 feet from the Third Street grade crossing. The maximum noise levels measured for individual railroad operations in the community would be expected to result in significant short term noise impacts for persons located near the tracks. This would be especially true in the vicinity of the Patterson Road grade crossing on the A.T.&S.F. Railway mainline.

Noise levels as defined by L_{dn} from railroad operations were calculated by mathematically combining noise level data from measurements in Riverbank and other communities along the A.T.&S.F. Railway mainline in the San Joaquin valley with the operational data reported by the railroad in Table II. Calculation methods were consistent with recommendations from ONC. L_{dn} was calculated both with and without the presence of grade crossings to account for increased noise exposure for areas in close proximity to grade crossings. Distances from the center of the tracks to L_{dn} contour values of 75, 70, 65 and 60 dB are summarized in Table III for existing and projected future levels of railroad activity on the A.T.&S.F. Railway mainline. The approximate locations of the 60 dB L_{dn} contours are shown in Figures 2 and 3 for existing projected future railroad operations. As with the contours shown in Figures 2 and 3 for traffic noise sources, railroad noise contours should be considered as estimates of a worst case exposure with little or no shielding from topography or nearby buildings.

Although noise levels from individual train movements on the branchline produce short term noise impacts when they occur, they do not occur frequently enough to produce significant noise impacts as defined by L_{dn} .

TABLE III

DISTANCE (FEET) FROM CENTER OF TRACK
TO L_{dn} CONTOURS FOR ATCHISON, TOPEKA AND
SANTA FE RAILWAY LINE OPERATIONS
RIVERBANK, CALIFORNIA

	<u>1985</u>	<u>2000</u>
Greater than 1000' from Grade Crossings		
L_{dn} 75 dB	71	94
L_{dn} 70 dB	154	203
L_{dn} 65 dB	331	437
L_{dn} 60 dB	713	940
Less than 1000' from Grade Crossings		
L_{dn} 75 dB	133	164
L_{dn} 70 dB	237	292
L_{dn} 65 dB	422	519
L_{dn} 60 dB	750	940

Source: Brown-Buntin Associates

c. Industrial Facilities

Noise exposure information for local industrial facilities was developed from information obtained through interviews with plant operators and from noise level measurements conducted at reference locations in the Riverbank community where appropriate. Consistent with the L_{dn} methodology, a 10 dB penalty was added to noise levels occurring at night (10:00 p.m. - 7:00 a.m.) where applicable. In discussing future operations with plant operators it was readily apparent that too many variables exist to allow meaningful projections of future activity or noise levels. It is recommended that detailed studies of current source operations and noise levels be conducted whenever potentially noise-sensitive land uses are proposed for areas near existing industrial or commercial facilities.

- Yolo Transport Company, Inc.

This is a truck service and storage facility located west of the A.T.&S.F. Railway mainline and south of Patterson Road. The facility operates 24 hours/day with the majority of truck movements occurring between the hours of 5:00 a.m. and 4:00 p.m. The peak season for the facility is generally July-September when there are up to 80 truck movements within a 24-hour period. The major source of noise associated with this operation is the movements of heavy trucks in and out of the facility. The L_{dn} 60 dB contour for a peak day is located approximately 100 feet from areas where truck movements occur.

Source: Mr. Jerry Rocha

- Monschein Cabinet Company

This is a cabinet manufacturing plant which operates 5-6 days per week. The normal hours of operation are 8:00 a.m. - 4:00 p.m. Operations occasionally begin at 7:00 a.m. Most noise generating equipment associated with this operation is located inside the building. Exceptions to this are a dust collector and a screw-type air compressor. The compressor generates noise levels which are audible north of the plant. Measured noise levels from the compressor on August 27, 1985 ranged from 70-75 dBA at 40 feet. Assuming normal hours of operation, such levels would produce a 60 dB L_{dn} contour at approximately 100 feet from the compressor. Changes in operations which could affect noise levels in the future are not expected at this time.

Source: Mr. Mike Monschein, Owner

- Carnation Company - Can Division

This is a can manufacturing plant which operates 5 days/week, 24 hours/day. Most major noise sources are completely enclosed within the plant building. Major

sources of noise on the outside of the building include 3 make up air vents and a number of air conditioning units located on top of the building. Of these, the make up air vents are the most significant. Noise measurements were conducted at 2 locations on August 27, 1985 to document noise levels generated by the air vents. The average measured noise level was 56 dBA at approximately 600 feet northeast of the plant. Based upon the above-described noise level data and a typical 24 hour work day during the week, the 60 dB L_{dn} contour is located at approximately 800 feet from the plant. Future changes in plant operations which could significantly affect noise levels in the community are not anticipated at this time.

Source: Mr. Al Kessler, Office Manager

. DuraBilt Truss Company

The DuraBilt Truss Company manufactures floor and ceiling truss assemblies. Normal hours of operation during the summer months are 6:00 a.m. to 6:00 p.m. with operations occasionally beginning at 5:30 a.m. During the winter months, hours of operation are typically 7:00 a.m. to 4:30 p.m. Major noise sources include saws, hammers, nail guns, forklifts and truck movements. Maximum measured noise levels at approximately 150 feet north of the floor truss assembly area ranged from 60-62 dBA for hammers and from 55-58 dBA for saws. Due to the intermittent nature of noise levels generated by this facility, and the setback of most equipment from Patterson Road, noise exposures exceeding 60 dB L_{dn} are confined to areas within the plant boundary. However, intermittent noise levels from plant activities are clearly audible in the residential area north of Patterson Road during times when there is little or no traffic noise. Future changes in plant operations which could significantly affect noise levels in the community are not expected at this time.

Source: Ms. Denise Dupree, Office Manager

- Contadina Foods, Inc.

This is a tomato product canning operation which operates 5-7 days/week and 24 hours/day from July through mid-October. During the off-season, the plant operates from 7:30 a.m. to 4:00 p.m. 5 days/week. Major noise sources include boilers, steam vents, truck movements, forklifts and a can line. The boilers and can line do not operate during the off season. Noise level measurements were conducted on August 27, 1985 at 5 locations north and east of the plant. At distances of approximately 100 to 1000 feet, noise levels ranged from 61 to 68 dBA. The most significant source of noise in the community was the can line which was particularly noticeable at night in many areas east and south of the plant. Using the noise level data obtained during the measurement period and the hours of operation typical of the peak season, the 60 dB L_{dn} contour is located approximately 2300 feet from the center of the plant. This contour is representative of a worst case condition where the can line is in operation 24 hours/day, and does not take into account shielding provided by buildings which could reduce noise exposure substantially in some areas. This would be especially true west of the plant. Future changes in plant operations which could significantly affect noise levels in the community are not anticipated at this time.

Source: Mr. Scott Butler, Plant Superintendent

- Riverbank Army Ammunition Plant

This plant manufactures casings and projectiles for ammunition. Presently the plant is producing a small grenade and a 60 mm mortar. The plant also has the facilities to produce a 105 mm cartridge case and an 81 mm mortar. The Army has implemented a modernization program at the facility which has reduced noise levels when

compared to previous years. Major sources of noise include a press for the grenade and a shear for the 60 mm mortar. Normal hours of operations are 7:00 a.m. to midnight 5 days/week at the present time. Hours of operation would increase as required to meet defense demands. Noise measurements were conducted on August 27, 1985 near the intersection of Claus Road and Minniear Road. No audible sounds from the plant were noted. According to plant management, significant noise levels as defined by L_{dn} from plant operations would not be expected outside the plant boundaries.

Source: Mr. Jim Gansel, Commanders Representative

. Thunderbolt Wood Treating Company, Inc.

This is a wood treating plant which processes wooden stakes, posts and other products. Hours of operation are 6:00 a.m. to 7:00 p.m. during the summer months and 5:00 a.m. to midnight during the winter months. Major sources of noise include saws (daylight hours only), forklifts, truck movements, pumps and compressors. Pumps and compressors are located inside the building. Noise levels exceeding 60 dB L_{dn} would not be expected in areas outside the plant boundary. Changes in plant operations which could affect future noise levels in the community are not anticipated at this time.

Source: Mr. Lee Muth, Plant Manager

. Riverbank Pallet Company

The Riverbank Pallet Company is a wooden pallet remanufacturing plant located adjacent to the A.T.&S.F. Railway mainline near Talbot Avenue. Normal hours of operation are 7:00 a.m. to 3:30 p.m. 5 days/week. Major sources of noise include forklifts, nailguns and truck movements. The plant was not in operation during the afternoon of August 27, 1985 when noise measurements were

conducted in the area. However, it is anticipated that noise levels exceeding 60 dB L_{dn} would be confined to within the plant boundary. Future changes in operations which could effect noise levels generated by the plant are not expected at this time.

Source: Mr. Darrel Roberson, Owner

. Oakwood Products

This is a new plant which will laminate wood products. Since the plant was not in operation during field studies on August 27 and 28, 1985, it was not possible to document noise levels which will be generated by the plant. It appeared that most noise generating equipment will be located inside the building. It is recommended that an acoustical analysis be required to properly quantify plant-related noise levels if future noise sensitive land uses are proposed in the area near the plant.

Source: City of Riverbank

2. Noise-Sensitive Areas

The following noise sensitive land uses have been identified within the City of Riverbank.

a. Residential Areas

- . All dwellings including single-family, multi-family, mobile homes, etc.

b. Schools

- . California Avenue School
- . Riverbank High School
- . Rio Altura School
- . Cardoza School

c. Convalescent Hospitals

- . River Bluff Convalescent Hospital
- . Del Rio Guest Home
- . Sunshine Home

d. Parks and Recreational Areas

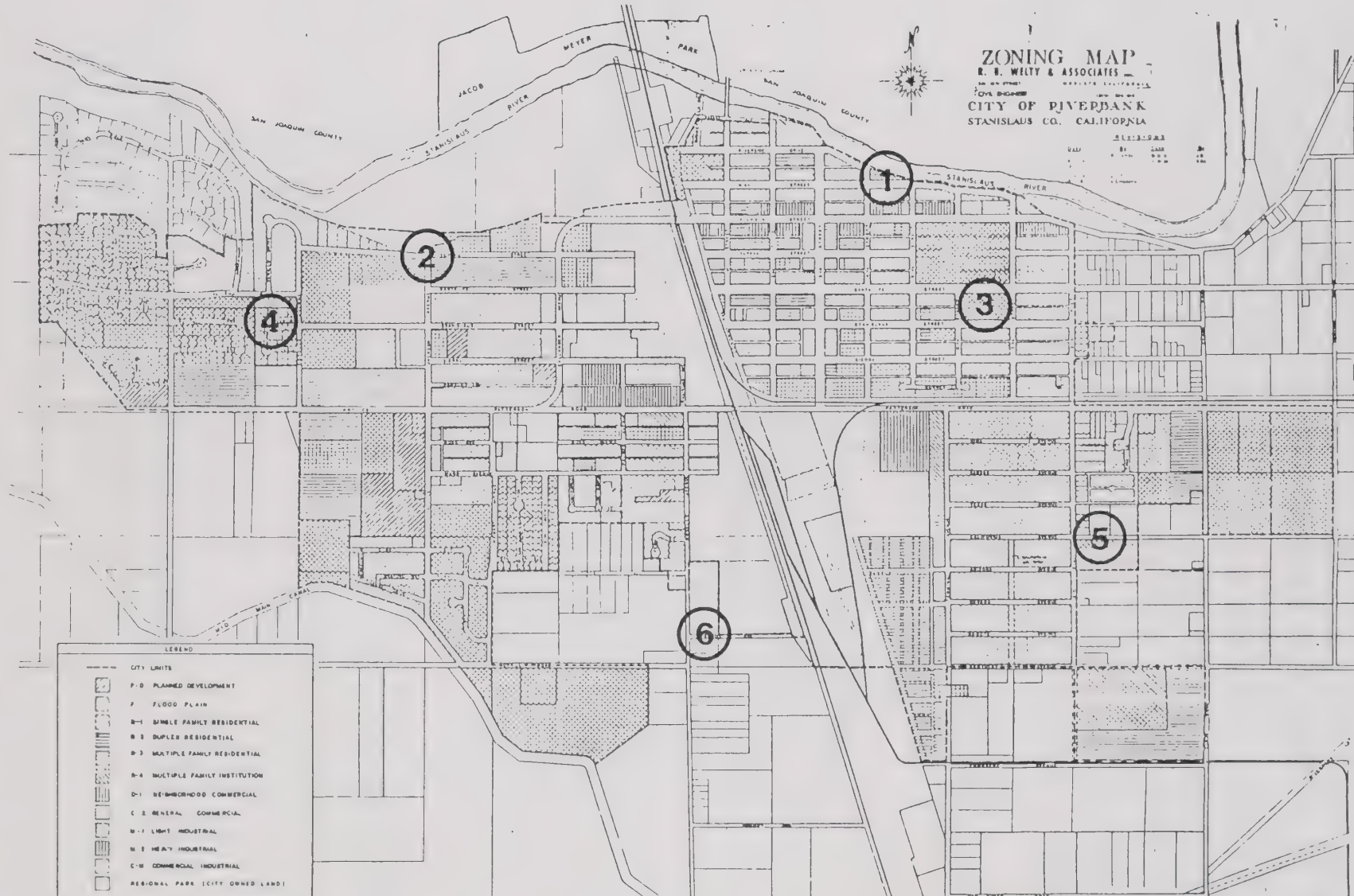
- . Jacob Meyer Park
- . Hutcheson Park
- . Riverbank Community Center
- . Esther Staley Park
- . Pioneer Park
- . California Avenue Park
- . Castleburg Park

As required by the Government Code and ONC Guidelines, a community noise survey was conducted to document noise exposure in areas of the community containing noise sensitive land uses. Noise monitoring sites were selected to be representative of typical conditions in areas of the community where such uses are located. Noise monitoring was conducted on August 27 and 28, 1985 at three different times during the daytime and nighttime hours at each location so that reasonable estimates of L_{dn} could be prepared. Noise monitoring equipment consisted of a Bruel & Kjaer (B&K) Type 2218 integrating sound level meter equipped with a B&K Type 4165 1/2" microphone. The measurement system was calibrated in the field prior to use with a B&K Type 4230 acoustical calibrator, and complies with all applicable requirements of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The locations, measured noise levels and estimated L_{dn} values for each of the six community noise survey monitoring sites are summarized in Table IV. The monitoring sites are depicted on a map of the community in Figure 4.

The results of the community noise survey indicate that noise levels as defined by L_{dn} range from approximately 45-60 dB in areas of the community where noise sensitive land uses are

Figure 4

Community Noise Survey Monitoring Sites



BBA

located. Since noise level monitoring was conducted during the canning season, it is anticipated that the estimated L_{dn} values presented in Table IV are representative of a worst case condition. It is interesting to note in Table IV that for Sites #3, 5 and 6 noise levels measured during the nighttime sample periods were comparable to or higher than noise levels measured during the daytime sample periods. This may be explained by the fact that industrial activities in the community appeared to be relatively constant throughout the day and night, and by atmospheric conditions at night which allowed for the more effective transmission of sound over distance. Such atmospheric conditions included cooler temperatures, wind direction and the possible presence of a temperature inversion.

TABLE IV

SUMMARY OF MEASURED NOISE LEVELS AND ESTIMATED
DAY-NIGHT AVERAGE LEVELS (L_{dn}) IN AREAS
CONTAINING NOISE SENSITIVE LAND USES
RIVERBANK, CALIFORNIA

Site #	Description	L_D	L_N	L_{dn}
1	Hutcheson Park	48 dBA	46 dBA	53 dB
2	Jackson Ave @ Topeka St	54 dBA	44 dBA	54 dB
3	Riverbank Community Center	50 dBA	50 dBA	56 dB
4	Almondwood Dr @ Rivergate Dr	43 dBA	38 dBA	46 dB
5	California Ave School	45 dBA	47 dBA	53 dB
6	Talbot Ave near Roselle Ave	47 dBA	49 dBA	55 dB

L_D : L_{eq} during daytime (7:00 a.m.-10:00 p.m.) hours.

L_N : L_{eq} during nighttime (10:00 p.m.-7:00 a.m.) hours.

Source: Brown-Buntin Associates

E. GOALS AND OBJECTIVES

Following is a summary of the major goals and objectives of the Noise Element of the City of Riverbank General Plan:

1. Provide sufficient noise exposure information in the General Plan so that existing and potential noise impacts may be effectively addressed in the land use planning and project review processes.
2. Develop and implement effective strategies to abate and avoid excessive noise exposures in the community by requiring that effective noise mitigation measures be incorporated into the design of new noise generating and new noise-sensitive land uses.
3. Protect areas within the City of Riverbank where the present noise environment is deemed acceptable.
4. Protect areas within the City of Riverbank which are deemed noise-sensitive.

F. SPECIFIC POLICIES

The following specific policies are recommended for adoption and implementation by the City of Riverbank in order to accomplish the above-stated goals and objectives:

1. Areas within the City of Riverbank exposed to existing or projected future exterior noise levels exceeding 60 dB L_{dn} shall be designated as noise-impacted areas (Figures 2 and 3).
2. New development of residential or other noise sensitive land uses will not be permitted in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels in outdoor

activity areas to 60 dB L_{dn} or less and interior noise levels to 45 dB L_{dn} or less. In areas where it is not possible to reduce exterior noise levels to 60 dB L_{dn} or less using a practical application of the best available noise-reduction technology, an exterior noise level of up to 65 dB L_{dn} will be allowed. Under no circumstances will interior noise levels exceeding 45 dB L_{dn} with the windows and doors closed be permitted.

3. Where the development of residential or other noise-sensitive land uses is proposed for a noise-impacted area, an acoustical analysis will be required. The acoustical analysis should:

- a. Be the responsibility of the applicant.
- b. Be prepared by a qualified acoustical consultant (a list of qualified acoustical consultants is available from the California Office of Noise Control).
- c. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
- d. Include estimated noise levels in terms of exterior L_{dn} for existing and projected future (10-20 years hence) conditions, with a comparison made to noise level criteria contained within the adopted policies of the Noise Element.
- e. Include recommendations for appropriate mitigation to achieve compliance with the adopted policies of the Noise Element. Where the noise source in question consists of intermittent single events, the report should address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.

- f. Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the Noise Element will not be achieved, a rationale for acceptance of the project should be provided.
4. The City of Riverbank will enforce the State Noise Insulation Standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code concerning the construction of new multi-family dwellings such as hotels, apartments, and condominiums within noise-impacted areas.
5. Noise level criteria applied to land uses other than residential or other noise-sensitive uses shall be consistent with recommendations of the California Office of Noise Control (Figure 5).
6. New equipment and vehicles purchased by the City of Riverbank shall comply with noise level performance standards consistent with the best available noise reduction technology.
7. Noise exposure information developed during the community noise survey described in the Noise Element shall be used as a guideline for the City Council to conduct public hearings to consider adoption of a Noise Ordinance. This ordinance would assist the City of Riverbank in controlling future increases in community noise levels, in addressing noise complaints, and to provide local industry with noise level criteria for future development and equipment modifications. The ordinance shall be consistent with the "Model Community Noise Control Ordinance" prepared by the California Office of Noise Control in 1977 (Appendix C) with modifications made to reflect local concerns and conditions.
8. The City of Riverbank Police Department will actively enforce existing sections of the California Vehicle Code relating to mufflers and modified exhaust systems.

Figure 5

Land Use Compatibility For Community Noise Environments

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE L _{dn} OR CNEL, dB						INTERPRETATION
	55	60	65	70	75	80	
RESIDENTIAL — LOW DENSITY SINGLE FAMILY, DUPLEX, MOBILE HOMES							 NORMALLY ACCEPTABLE Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
RESIDENTIAL — MULTI. FAMILY							
TRANSIENT LODGING — MOTELS, HOTELS							 CONDITIONALLY ACCEPTABLE New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES							
AUDITORIUMS, CONCERT HALLS, AMPHITHEATRES							 NORMALLY UNACCEPTABLE New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
SPORTS ARENA, OUTDOOR SPECTATOR SPORTS							
PLAYGROUNDS, NEIGHBORHOOD PARKS							 CLEARLY UNACCEPTABLE New construction or development should generally not be undertaken.
GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETERIES							
OFFICE BUILDINGS, BUSINESS COMMERCIAL AND PROFESSIONAL							
INDUSTRIAL, MANUFACTURING UTILITIES, AGRICULTURE							

CONSIDERATIONS IN DETERMINATION OF NOISE-COMPATIBLE LAND USE

A. NORMALIZED NOISE EXPOSURE INFORMATION DESIRED

Where sufficient data exists, evaluate land use suitability with respect to a "normalized" value of CNEL or L_{dn}. Normalized values are obtained by adding or subtracting the constants described in Table 1 to the measured or calculated value of CNEL or L_{dn}.

B. NOISE SOURCE CHARACTERISTICS

The land use-noise compatibility recommendations should be viewed in relation to the specific source of the noise. For example, aircraft and railroad noise is normally made up of higher single noise events than auto traffic but occurs less frequently. Therefore, different sources yielding the same composite noise exposure do not necessarily create the same noise environment. The State Aeronautics Act uses 65 dB CNEL as the criterion which airports must eventually meet to protect existing residential communities from unacceptable exposure to aircraft noise. In order to facilitate the purposes of the Act, one of which is to encourage land uses compatible with the 65 dB CNEL criterion wherever possible, and in order to facilitate the ability of airports to comply with the Act, residential uses located in Com-

munity Noise Exposure Areas greater than 65 dB should be discouraged and considered located within normally unacceptable areas.

C. SUITABLE INTERIOR ENVIRONMENTS

One objective of locating residential units relative to a known noise source is to maintain a suitable interior noise environment at no greater than 45 dB CNEL of L_{dn}. This requirement, coupled with the measured or calculated noise reduction performance of the type of structure under consideration, should govern the minimum acceptable distance to a noise source.

D. ACCEPTABLE OUTDOOR ENVIRONMENTS

Another consideration, which in some communities is an overriding factor, is the desire for an acceptable outdoor noise environment. When this is the case, more restrictive standards for land use compatibility, typically below the maximum considered "normally acceptable" for that land use category, may be appropriate.

9. The findings and specific policies of the Noise Element will be incorporated into the City of Riverbank Zoning Ordinance and coordinated with the Land Use and Circulation Elements of the General Plan.
10. The City of Riverbank will periodically review and update the Noise Element to ensure that noise exposure information and specific policies are consistent with changing conditions within the community.

APPENDIX A

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL:	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
A-WEIGHTED SOUND LEVEL:	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.
CNEL:	Community Noise Equivalent Level. The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
DECIBEL, dB:	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
EQUIVALENT ENERGY LEVEL, L_{eq} :	The sound level corresponding to a steady state sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.
L_{dn} :	Day/Night Average Level. The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
NOTE:	CNEL and L_{dn} represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the equivalent energy noise exposure for a shorter time period, typically one hour.
L_{max} :	The maximum A-weighted noise level recorded during a noise event.
L_n :	The sound level exceeded "n" percent of the time during a sample interval. L_{10} equals the level exceeded 10 percent of the time (L_{90} , L_{50} , etc.)
NOISE EXPOSURE CONTOURS:	Lines drawn about a noise source indicating constant energy levels of noise exposure. CNEL and L_{dn} are the descriptors utilized herein to describe community exposure to noise.

APPENDIX B
TRAFFIC DATA
STATE ROUTE 108 AND MAJOR LOCAL STREETS - RIVERBANK, CALIFORNIA

Roadway	Year	AADT	% Day	% Night	% MT	% HT	Speed
State Route 108							
(East of Estelle Ave)	1985	8,300	86.0	14.0	4.2	1.2	35
	2000	14,100	86.0	14.0	4.2	1.2	35
(West of Estelle Ave)	1985	8,300	86.0	14.0	4.2	1.2	45
	2000	14,100	86.0	14.0	4.2	1.2	45
Patterson Road							
(SR108 to Terminal Ave)	1985	4,200	90.0	10.0	5.0	5.0	35
	2000	7,100	90.0	10.0	5.0	5.0	35
(Terminal Ave to Snedigar)	1985	2,400	90.0	10.0	5.0	5.0	35
	2000	4,100	90.0	10.0	5.0	5.0	35
Oakdale Road							
(South of Patterson Rd)	1985	3,600	90.0	10.0	2.5	2.5	55
	2000	6,100	90.0	10.0	2.5	2.5	55
Claus Road							
(North of Patterson Rd)	1985	7,500	90.0	10.0	5.0	5.0	45
	2000	12,700	90.0	10.0	5.0	5.0	45
(South of Patterson Rd)	1985	5,400	90.0	10.0	5.0	5.0	45
	2000	9,200	90.0	10.0	5.0	5.0	45
Roselle Avenue							
(South of Patterson Rd)	1985	2,400	90.0	10.0	2.5	2.5	35
	2000	4,100	90.0	10.0	2.5	2.5	35
First Street							
(North of SR108)	1985	2,300	90.0	10.0	2.5	2.5	25
	2000	3,900	90.0	10.0	2.5	2.5	25
(South of SR108)	1985	4,500	90.0	10.0	2.5	2.5	35
	2000	7,600	90.0	10.0	2.5	2.5	35
Third Street							
(SR108 to Sante Fe St)	1985	1,800	90.0	10.0	2.5	2.5	25
	2000	3,100	90.0	10.0	2.5	2.5	25
(Sante Fe St to Patterson)	1985	4,900	90.0	10.0	2.5	2.5	25
	2000	8,300	90.0	10.0	2.5	2.5	25
Terminal Avenue							
(South of Patterson Rd)	1985	3,300	90.0	10.0	1.0	0.0	35
	2000	5,600	90.0	10.0	1.0	0.0	35
Eighth Street							
(SR108 to Patterson Rd)	1985	1,700	90.0	10.0	2.5	2.5	25
	2000	2,900	90.0	10.0	2.5	2.5	25
(South of Patterson Rd)	1985	1,500	90.0	10.0	2.5	2.5	25
	2000	2,500	90.0	10.0	2.5	2.5	25

Note: Projections of future traffic are based upon an annual growth factor of 3.6% as reported by Caltrans for 1979-1984.

Source: City of Riverbank, Caltrans, BBA File Data

Safety and Seismic Safety Element

Adopted __, 19__

Safety and Seismic Safety Element

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SAFETY AND SEISMIC SAFETY ELEMENT

Chapter I Introduction

The State of California requires that two of the nine mandated elements of the general plan be safety and seismic safety. The specific requirements of these elements are listed below. Since they are very similar and overlap somewhat they are being combined into one element for the City of Riverbank.

Government Code Section 65302(i) requires a safety element "for the protection of the community from fires and geologic hazards including features necessary for such protection as evacuation routes, peak load water supply requirements, minimum road widths, clearances around structures, and geologic hazard mapping in areas of known geologic hazards".

Government Code Section 65302(f) requires a seismic safety element "consisting of an identification and appraisal of seismic hazards such as susceptibility to surface ruptures from faulting, to ground shaking, to ground failure, or to effects of seismically induced waves such as tsunamis and seiches.

"The seismic safety element shall also include an appraisal of mud slides, landslides, and slope stability as necessary geologic hazards that must be considered simultaneously with other hazards such as possible surface ruptures from faulting, ground shaking, ground failure and seismically induced waves".

Most of these topics will be covered in this element. There are no known faults near Riverbank so hazards from earthquake activity would be limited to ground shaking, and inundation from dams up river from the city. There is no history of land subsidence anywhere in the county. According to information provided by the Stanislaus County Office of Emergency Service (see Appendix I) there is no danger of flooding within the City of Riverbank.

The Atchison, Topeka and Santa Fe Railroad runs through the center of town. The trains roll through quickly and often without stopping. These trains may carry a variety of cargo including toxic, munitions and poisons. An accident could present a danger to the city which we cannot prevent. All that can be done is to be prepared in case something happens. The remaining topics will be discussed in Chapter III and plan devised.

CHAPTER II

Goals and Objectives

The first chapter of this element describes the requirements of State Law with respect to Safety and Seismic Safety Elements. This chapter shall discuss goals, while the remainder of the element sets policies and describes proposed implementation measures.

GOAL I

TO BE PREPARED FOR ANY EMERGENCY including earth-quakes, dam failures, fires, and hazardous substance accidents. Plans are now being made with the county for doing much of this.

GOAL II

TO PROVIDE SAFE BUILDINGS FOR PEOPLE TO OCCUPY in the City of Riverbank. The city adopted Uniform Building Code and Uniform Fire Code dictates the manner in which this shall be accomplished.

GOAL III

TO PROVIDE ADEQUATE DISTANCES BETWEEN BUILDINGS FOR FIRE SAFETY.

GOAL IV

TO PROVIDE ADEQUATE ACCESS FOR FIRE FIGHTING AND OTHER EMERGENCY EQUIPMENT.

CHAPTER III

Safety and Seismic Safety Plan

A. EARTHQUAKES

Common to both the safety and seismic safety elements is the emphasis on earthquakes and the damage they can do. According to the Office of Emergency Services, "there are four Pre-Quaternary faults (older than two million years with no indication of recent displacement) in or near Stanislaus County. Telsa and Ortigalita faults are 26 miles west of Riverbank in the Westside Hills. Bear Mountain fault zone is 25 miles each of Riverbank in Tuolumne and Calavares Counties. Melones fault zone is 30 miles each of Riverbank in Tuolumne and Calavares Counties.

The Calavares and Hayward faults are major Quaternary faults (generally, no evidence of recent displacement but clearly recognized by terrain features) are located 53 miles west of Riverbank in Santa Clara County. Fault creep slippage has been observed in portions of both of these faults. In other words, portions of these faults are stable where other portions are not.

The San Andreas Fault (California's major fault) is much like the Calavares and Hayward faults. The difference being, there is indication of recent movement in its entire length. This fault is located approximately 60 miles west of Riverbank in Santa Clara and Santa Cruz Counties. (See Appendix I)

Although it is not expected that there would be any surface ruptures resulting from an earthquake, ground shaking could cause significant problems in the Riverbank area. A major quake (8 or above on the Richter Scale) caused by one of the above faults could cause a Richter reading of 6 or even 7 in the Riverbank area. This would result in damage to buildings and under ground utilities. In addition, landslides along the bluff of the Stanislaus River could occur. Although these occurrences will affect some people a more far-reaching problem would be if one of the Stanislaus River dams failed.

Failure of Tullock Dam would not have a great affect on the city. Only a small area on the south side of the river around Orange Avenue would flood. More importantly the sewer plant would probably flood out. Failure of New Melones Dam would have a significant impact on the city. Within 2-1/2 hours from dam failure, water would begin to flood the city as well as most of the northern part of the county including Modesto. The flooding would crest at about 5-10 feet in downtown Riverbank. If this were to occur, evacuation should be to the southeast toward higher ground. The primary evacuation routes would be Terminal/Santa Fe and Claus towards Empire and Waterford.

Most of the policies needed for response to earthquakes are currently in place and being practiced. They are, nevertheless, listed below.

POLICY A-1:

The City of Riverbank shall work closely with the Stanislaus County Office of Emergency Services to complete an emergency plan for the city. (Goal I)

POLICY A-2:

The City of Riverbank shall, to the extent feasible, train its personnel in disaster preparedness. (Goal I)

POLICE A-3:

Provide, to the extent feasible, the tools dealing with emergencies. (Goal I)

B. FIRES

Generally fires are no more of a problem in the City of Riverbank than in any other community. The Riverbank Fire Department enforces the Uniform Fire Code on new buildings and does periodic inspections of existing buildings. The highest structure which could be built in the city is 6 stories high and residential buildings can only be built 3 stories high. A ladder could reach all residential buildings and more than half of the permitted 6 story buildings. The fire district ladder will go 50 feet and the 6 story building cannot exceed 70 feet in height. The remaining portions of the building would be protected by sprinklers. Sprinklers are, according to the fire chief, are about 96 percent effective. Although still somewhat inadequate, the supply of water for fighting fires has improved a lot over the past few years. The city currently has a Class 6 fire rating.

Some existing uses cause the fire chief concern as possible fire hazards. Some of the older residential buildings (e.g. the Snyder Apartments) are in such a poor condition that they could easily burn. They are not a danger to other buildings but would likely be completely gone if a fire of any magnitude began. The older commercial buildings downtown could also be hazardous. Some of these buildings have common attics. If one of the stores caught fire, the whole block could go. Both the ammo plant and the can plant have propane tanks that could be dangerous. In addition the can plant has stored barrels of solvent, lacquer and methyl ethyl ketone at the rear of their property. These uses are not doing anything illegal. The ammo plant and can plant meet the codes pertaining to the explosive substances they have but the fact that they exist and that accidents do occur make them at least potentially dangerous.

The city already has many preventive policies in place. The streets, particularly in the downtown area, are exceptionally wide (80-100 feet). Elsewhere in the city a system of collectors and major roads provide 60-100 foot wide roads throughout the city at fairly frequent intervals. These street widths do two things. First, in case of earthquake, rubble from falling buildings will probably not completely block the streets. Emergency vehicles should still be able to maneuver. All subdivisions and

other major development projects are referred to the Fire Department for comment. During the past 3-4 years the Planning Commission has without fail, conditioned approval of these projects on the Fire Departments requirements. Second, the width of streets could prevent fires from spreading. Although setbacks and fire walls are the most common means of controlling spreading fires, wide streets could be helpful in major fires.

As mentioned above, the zoning ordinance requires setbacks in many areas. When setbacks are not required, the Uniform Building Code requires fire walls of 1, 2 or 4 hours separation. These setbacks are typical of other jurisdiction's requirements. The zoning ordinance also attempts to segregate industrial uses such as the can plant, which are likely to have larger amounts of flammable substances, from residential uses. This reduces the number of people that might be in danger.

The fire chief felt that other than the current cooperation between the fire and planning department, there were only three things that the city could do to help him. First, the city could continue to improve the water supply and thus the fire flows. This might help with the city's rating. Second, gas standby pumps, such as those on the River Heights and Pioneer Park wells, could be added to all city wells. This would prevent interruption of water service in the case of blackouts. Third, the city could consider requiring that roofing material that is noncombustible, (i.e. not shakes or shingles). He feels this is particularly important on large complexes, but the Building Code requires this anyway. Certainly the city should continue improving its water system including the possible addition of standby gas pumps on all wells. This will probably take a considerable amount of time since finances are limited. Although the suggestion regarding noncombustible materials can be implemented on large developments, it is not practical or potentially feasible on single family homes.

POLICY B-1:

The City of Riverbank shall continue to enforce the fire and building codes. (Goal 2)

POLICY B-2:

The City of Riverbank shall maintain adequate space between buildings through the zoning ordinance and building code to provide for fire safety. (Goal 3)

POLICY B-3:

The City of Riverbank shall maintain a road system that provides adequate access for emergency equipment. (Goal 4)

POLICY B-4:

The City of Riverbank will condition major developments such as subdivisions and planned developments, to meet recommendations of the Riverbank Fire Protection District.

Goals 2,3 and 4)

POLICY B-5:

The City of Riverbank will continue to improve when feasible, the water system of the city.

C. HAZARDOUS SUBSTANCES

At least three industrial plants in or near the City of Riverbank have hazardous substances. The cheese plants in downtown Riverbank produce whey, which can cause problems in the sewer plant and lines if spilled. This happens occasionally and while a minor spill can be handled, a major spill could cause problems at the sewer plant.

Thunderbolt Wood Treating Plant has many different chemicals which, if spilled, can pollute the groundwater. The plant is well run and there is very little chance of any spill reaching the ground let alone the groundwater. Nearby water wells are constantly monitored and no problem has ever occurred.

The third potential problem area is the Contadina Cannery. Chlorine is stored on the property. The plant meets all of the regulations for storing the chlorine but accidents can happen. An accident with the chlorine could cause a harmful vapor cloud and require evacuation of a portion of the town.

All of these potential problems are currently under control and no further restrictions are needed. The plants meet the safety requirements and/or are monitored to ensure compliance. Nothing else is within the city's ability to control.

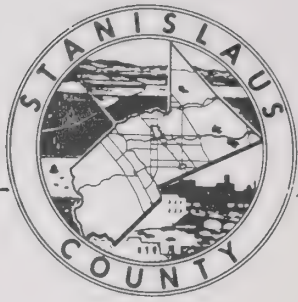
CHAPTER IV

SPECIFIC IMPLEMENTATION MEASURES

The preceding Chapter sets down plans and policies to be followed by the City of Riverbank with respect to safety and seismic safety. Implementing these plans and policies requires specific actions. Some of these actions can take place now, other are ongoing responsibility, some are done periodically and still other only when the need arises.

1. The City of Riverbank shall hold periodic training sessions/mock disaster drills to aid key personnel in being prepared for disasters. (Policies A-1 and A-2)
2. The City of Riverbank shall allow personnel to take classes in disaster preparedness whenever time and funds permit. (Policy A-2)
3. Investigate obtaining some barricades and hazardous material detectors such as a geiger counter, to aid emergency personnel in dealing with emergencies. (Policy A-3)
4. The Zoning Ordinance shall be monitored to insure that adequate setbacks are provided for fire safety. (Policies B-1, B-3 and B-4)
5. Any amendments to the Circulation Element shall take into consideration access to emergency vehicles. (Policy B-3)
6. All development requests will be referred to the fire district for comment. (Policy B-4)
7. Whenever possible, the Capital Improvement Plan shall include improvements to the water system. (Policy B-5)

SAFETY.04A



Stanislaus County

Office of Emergency Services

1100 H Street

P.O. Box 233
Modesto, Ca. 95353
(209) 626-6453
571

APPENDIX I

August 20, 1982

Memo to: Pam Carder, Planning Department

From: James A. Martin, Deputy Director *JAM*

Subject: Hazard Study Information

The following are responses to your questions, individually and in the order you ask them:

1. a. Faults

There are four Pre-Quaternary faults (older than two million years with no indication of recent displacement) in or near Stanislaus County. Telsa and Ortigalita faults are 26 miles west of Riverbank in the Westside Hills. Bear Mountain Fault Zone is 24 miles east of Riverbank in Tuolumne and Calaveras Counties. Melones Fault Zone is 30 miles east of Riverbank in Tuolumne and Calaveras Counties.

The Calaveras and Hayward Faults are major Quaternary faults (generally, no evidence of recent displacement but clearly recognized by terrain features) are located 53 miles west of Riverbank in Santa Clara County. Fault creep slippage has been observed in portions of both of these faults. In other words, portions of these faults are stable where other portions are not.

The San Andreas Fault (California's major fault) is much like the Calaveras and Hayward faults. The difference being, there is indication of recent movement its' entire length. This fault is located approximately 60 miles west of Riverbank in Santa Clara and Santa Cruz Counties.

It should be noted that all the faults mentioned above run northwest to southeast and are not limited to the adjacent counties mentioned.

1. b. Ground shaking:

It is not anticipated that an earthquake would occur in Stanislaus County. However, a major quake (8 or above on Richter Scale) in our adjacent counties could possibly cause our county to feel shakings in the 6 or even 7 reading. Shaking of this magnitude could cause some severe damage in the city of Riverbank, particularly in some of the older buildings that have more than one story and in the underground utilities.

c. Possibility of landslides:

The only impact I could see to the soil would be some possible slippage along the bluff on the south bank of the Stanislaus River. It could just possibly break up or loosen some of the subsurface hardpan deposits in and around the city. Its like concrete, you know.

2. Inundation due to dam failure:

- a. Tulloch Dam: Failure of this dam would not have too great an impact on the city. Some of the area near Orange Avenue would have water. I doubt that it would come up to Riverside Drive just south of Orange. The determining factor would be the capacity of the lake at time of failure. Jacob Meyer Park and the sewer plant on the north side would most likely wash out. That's a problem to deal with.

Melones Dam: Should this dam fail, the county has real problems. The entire city of Riverbank would have water. I would estimate that it will take approximately $2\frac{1}{2}$ hours for the water to get to the city. The inundation maps indicate 5 to 10 feet of water at City Hall. I should note at this time, you would not see a 5-10 foot head of water coming down on the city. The water would be moving at approximately 5 miles per hour, crest at 5-10 feet and begin subsiding almost as rapidly as it comes in. When the dam has emptied, there is no more.

- b. Evacuation routes out of town would be south. Primarily using Claus and Terminal/Santa Fe. Residents would be told not to go to Modesto for it will flood. Also, they would want to go toward Empire and Waterford.

3. Land subsidence:

In discussions I have had with Public Works engineering people, no one has ever heard of any problem of this type, anywhere in the county. Futher, they do not expect that there will be any problems in the future.

4. History of flooding:

The Stanislaus River has had a history of flooding in the past. However, even during it's worst stages, the city of Riverbank was not effected, other than the bridge that crosses the river. That bridge has been replaced and the problem has been corrected. The Federal Flood Insurance maps depict the 100 year flood boundary and shows no threat to the city. Further, with the construction of Tulloch and Melones dams, flooding along the Stanislaus should remain a thing of the past.

5. Emergency Plans:

I would be less than honest if I said emergency preparedness in this county was adequate at this time. Progress is being made daily toward that end, but a lot has to be done.

Basic emergency plans are now in the development stages, identifying duties and responsibilities of key officials in time of disaster.

Each contingency must be addressed individually, a warning system must be developed, (I have completed a survey to identify existing assets to be used in that warning system) Emergency Broadcast system has been developed and is operational, county-wide communications must be improved, evacuation plans for each city must be developed. I could go on. The most important ingredient of all these plans is to educate the public.

We will accomplish all these plans, but it will require time and the cooperation and support of every last citizen in the county to make it work.

